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A study conducted by the U.S. Department of Health, Education and Welfare investigated the relationship between sex role identity and academic achievement. Freshmen and seniors from nine rural Wisconsin high schools completed instruments which measured sex-role identity, self-expectations, self-concepts of ability and educational levels. Results indicated: (1) that while subjects' sex role identities were more in the emergent direction (i.e. a blending of tranditional male and female behaviors) they still viewed appropriate male and female behaviors along traditional lines (i.e. the rugged, unemotional male; the warm, understanding female); (2) that with movement to a more traditional sex-role identity, boys experienced decreased academic success; the opposite was true for girls. It was concluded that schools are "feminine institutions," supporting traditional feminine roles: girls succeed because they conform to these roles; boys, in rebelling against them and trying to prove their masculinity, do not do as well in their studies. It was suggested that schools foster more emergent sex roles since they are more conducive to academic success. (LS)

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A STUDY TO DETERMINE RELATIONS IN ROLE IDENTITY, SCHOLASTIC APTITUDE, ACHIEVEMENT, AND NON-ACADEMIC FACTORS AMONG MALE AND FEMALE STUDENTS

by

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TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS iv

LIST OF TABLES vii

LIST OF ILLUSTRATIONS ix

Chapter

I. NATURE OF THE PROBLEM 1

The Problem 3
  Rationale 5
Research Questions and Hypotheses 7
  Primary Research Questions 7
  Secondary Research Questions 8
  Ancillary Hypotheses 8
Basic Assumptions 8
Definition of Terms 10
Limitations of the Study 11
Summary 12

II. REVIEW OF THE LITERATURE 13

Sex-Role Development and Sex-Role Identity 13
The Relation Between Sex-Role and Education 29
Measuring Sex-Role Identity (Masculinity-Femininity) . 42
Summary 46

III. DESIGN OF THE STUDY AND STATISTICAL METHODOLOGY . . 48

The Sample 48
Operational Definitions of Key Terms 49
Data Collection 51
Instrumentation 52
  Sex-Role Norms and Sex-Role Identity 53
    Sex-Role Norms 57
    Sex-Role Identity 61
  Self-Expectation and Self-Concept of Ability Inventories 65
    Self-Expectation Inventory 66
    Self-Concept of Ability Inventory 67

Chapter Page

Treatment of the Data 68
Summary 69

IV. RESULTS 70

Primary Research Questions Results 71
Related Results 83
Summary of Primary Research Questions Results . . . 85
Secondary Research Questions Results 87
Summary of Secondary Research Questions Results . . 90
Ancillary Hypotheses Results 91
Summary of Ancillary Hypotheses Results 97

V. SUMMARY, CONCLUSIONS AND DISCUSSION, IMPLICATIONS AND SUGGESTIONS 99

Summary 99
Limitations 101
Conclusions and Discussion 102
Research Questions and Hypotheses 106
Regression Equations 112
SRI-MED, SRI-FED, SRI-MWS 114
ANOVA Tested Hypotheses 116
Suggestions for Education 117
Recommendations for Further Research 121

APPENDICES 124

LIST OF REFERENCES 160

LIST OF TABLES

Table	Page
1. SCHOOL AND SEX DISTRIBUTIONS OF THE TWELFTH-GRADE SUBJECTS FOR THE ASCERTAINMENT OF SEX-ROLE NORMS . .	57
2. CORRELATIONS BETWEEN SCHOOLS ON SEX-ROLE ADJECTIVE NORMS	60
3. SCHOOL, SEX, AND GRADE LEVEL DISTRIBUTIONS OF SUBJECTS WHO RESPONDED TO THE SEX-ROLE IDENTITY INSTRUMENT	62
4. AN EXAMPLE ILLUSTRATING SRI SCORING PROCEDURES . .	63
5. COEFFICIENT OF STABILITY FOR THE SEX-ROLE IDENTITY INSTRUMENT--SENIORS	64
6. CORRELATION COEFFICIENTS OF SCA WITH SRI BY GRADE LEVEL AND SEX, AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CORRELATIONS	72
7. CORRELATION COEFFICIENTS OF SRI WITH SE BY GRADE LEVEL AND SEX, AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CORRELATIONS	73
8. CORRELATION COEFFICIENTS OF SRI WITH GPA BY GRADE LEVEL AND SEX, AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CORRELATIONS	74
9. CORRELATION COEFFICIENTS OF H-N WITH SRI BY GRADE LEVEL AND SEX, AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CORRELATIONS	75
10. SUMMARY OF THE SIGNIFICANCE LEVELS OF SRI CORRELATIONS WITH SCA, SE, GPA, AND H-N	76
11. MULTIPLE CORRELATION COEFFICIENTS, COEFFICIENTS OF DETERMINATION, AND STANDARD ERRORS OF REGRESSION FOR SE, SCA, H-N, AND SRI WITH GPA FOR GRADE LEVEL BY SEX	77
12. MULTIPLE REGRESSION ANALYSIS OF SE, SCA, H-N, AND SRI WITH GPA FOR FRESHMAN BOYS	78

Table Page

13. MULTIPLE REGRESSION ANALYSIS OF SE, SCA, H-N, AND SRI WITH GPA FOR FRESHMAN GIRLS 79

14. MULTIPLE REGRESSION ANALYSIS OF SE, SCA, H-N, AND SRI WITH GPA FOR SENIOR BOYS 80

15. MULTIPLE REGRESSION ANALYSIS OF SE, SCA, H-N, AND SRI WITH GPA FOR SENIOR GIRLS 81

16. SUMMARY OF THE FINDINGS FOR THE FIFTH PRIMARY RESEARCH QUESTION (BETA WEIGHTS AND PARTIAL CORRELATIONS) . . 82

17. INTERCORRELATIONS AMONG SE, SCA, GPA, H-N, AND SRI BY GRADE LEVEL AND SEX 83

18. CORRELATION COEFFICIENTS OF PREDICTED WITH ACHIEVED GRADE-POINT-AVERAGE BY GRADE LEVEL AND SEX. 85

19. CORRELATION COEFFICIENTS OF SRI WITH MED BY GRADE LEVEL AND SEX 88

20. CORRELATION COEFFICIENTS OF SRI WITH FED BY GRADE LEVEL AND SEX 89

21. CORRELATION COEFFICIENTS OF SRI WITH MWS BY GRADE LEVEL AND SEX 90

22. SUMMARY TABLE OF SECONDARY RESEARCH QUESTIONS RESULTS 91

23. MEAN, VARIANCE, _t_ STATISTIC, AND LEVEL OF SIGNIFICANCE FOR SUBJECTS BY GRADE LEVEL AND SEX ON SE 92

24. MEAN, VARIANCE, _t_ STATISTIC, AND LEVEL OF SIGNIFICANCE FOR SUBJECTS BY GRADE LEVEL AND SEX ON SRI 94

25. ANALYSIS OF VARIANCE OF SRI FOR THREE GROUPS OF HIGH SCHOOL SENIOR GIRLS ACCORDING TO POST-HIGH SCHOOL PLANS AND GPA 95

26. ANALYSIS OF VARIANCE OF SRI FOR FOUR GROUPS OF HIGH SCHOOL SENIOR BOYS ACCORDING TO POST-HIGH SCHOOL PLANS AND GPA 96

27. PROPORTION OF RESPONSES EITHER REJECTING OR ACCEPTING MALE OR FEMALE ADJECTIVES BY SEX AND GRADE LEVEL . 158

28. HYPOTHESES TESTED AND _z_ SCORES FOR DATA CONTAINED IN TABLE 27 159

LIST OF ILLUSTRATIONS

Figure Page

1. Format used for the determination of sex-role norms 55

2. Format used for the determination of sex-role identity 56

CHAPTER I

NATURE OF THE PROBLEM

Two interrelated aspects of our present society make it imperative that a person develop a significant amount of his latent potential for learning, making effective use of the available educational facilities. For one, the amount of education needed for employment in general continues to rise. This increase is partly precipitated by the development and utilization of machines and techniques that demand of the worker skills that generally require more years of formal education than in the past. But these innovations serve to reduce the time most workers must spend on the job and hence a concomitant increase in leasure time for many. This is then the second factor; a factor that poses problems for the individual and society as to how this time will be spent most beneficially. It appears, that in part the solution lies in extending and improving the quality of one's educational experiences. Hence, for the above two reasons, and probably many others, it is imperative that we improve our methods for identifying people who will benefit from various forms of education, and help provide them with a climate that makes diligence to one's studies a rewarded trait.

The particular concern of this researcher pertains to academic achievement. Much effort has already been expended investigating the relation between academic achievement and student performance on scholastic aptitude tests. The extent of this effort probably contributed to prompting Thorndike (1963) to write:

> ...educators (and psychologists) have suffered from a kind of singleminded obsession with intelligence or scholastic aptitude tests as predictors. These tests have at times been virtually deified as an exemplification of exact and absolute truth....There has been a tendency to forget that the aptitude test is after all, only one sample of behavior from which another, usually somewhat different sample is being forecast (p. 3).

It has generally been found that these measures account for about only thirty percent of the achievement variance (GPA).

Variables such as socioeconomic status, interests, attitudes, and some personality traits have also been studied in attempts to improve the prediction of academic achievement; however, the results of these investigations have proven to be discouraging. This seems to indicate that the determiners of the criterion variable (GPA) are complex, and other factors need to be studied. "A legitimate and significant area of inquiry is the determination of other kinds of facts about an individual that can be shown to improve predictions" (Thorndike, p. 5).

Of importance in determining a person's scholastic success might be insight into what behaviors a certain subculture will either reward or punish and how the student views himself in these areas. This researcher's particular concern were the sex-role related norms of the relevant peer group culture. The discriminant reinforcement power of this subculture might determine how a person decides to make use of the available educational facilities and his own potential for learning. At this point an analogy seems appropriate.

Whether a woman is slim or obese is almost exclusively determined by the amount she eats. In many cultures a highly regarded feminine attribute is obesity--the women stuff themselves. The predominant ideal in our culture is slimness-the 900 calorie diet. Hence, what the relevant culture deems as appropriate to a large measure determines the eating habits of a vast number of women. Regarding how students behave, it seems likely that they will devote their energies most to those activities that the peer culture rewards. This is empirically evident to the parent of the teenager who devotes a larger proportion of his time to his electric guitar than his studies. On a more exacting level Coleman (1961) found that high school students are more concerned about and have more favorable attitudes toward activities that are the most highly rewarded by the peer culture. As one example, the difference between the grades of the recognized athletes and the scholars was greatest in the schools where scholastic achievement was least rewarded.

An implication of the above is that the peer group serves to determine what will be appropriate behavior: for boys, girls, or both. Knowledge of the sex-role related norms and of how each student perceives himself in these areas might prove helpful in predicting a student's scholastic success. It might also provide valuable evidence as to what is retarding a person's academic success and enable school workers and others to more effectively cope with the problem.

The Problem

Two recent research studies considered the relationship between academic achievement and certain nonintellectual factors. Binder (1965) found that an adolescent's concept of himself within the role of student [self-concept of ability (SCA) and self-expectations (SE)] were significantly correlated with GPA and hence made a significant contribution to GPA variance. Identity development (IRS) among twelfth-grade girls contributed significantly to the explanation of GPA variance (Jones, 1966). That IRS, SE, and SCA are seemingly related to academic achievement suggests that a factor that is probably an integral part of the above three is also related to academic achievement; it is sex-role identity (SRI), and it is defined below.

> SRI - The extent to which a person has incorporated into his various response hierarchies responses that the relevant subculture has deemed to be either more appropriate for the male or female.

Havighurst (1953) wrote that "behaving in a masculine fashion for a boy and a feminine fashion for the girl is an important developmental task at any age" (p. 96). With the physiological and sociological changes of the adolescent period the differentiation between the male and female is heightened. Seemingly, the achievement of the above mentioned developmental task is especially crucial at this time.

Knowing who one is sexually and behaving appropriately also seems to be directly related to Erikson's (1950) belief that the crucial crisis of adolescence is achieving ego identity. The adolescent's ability to answer the "Who am I?" question has been taken as a measure of ego identity (Jones, 1966). It seems logical that the establishment of ego identity includes resolving the "Who am I?" pertinent to sex-role behavior. The consistency, clarity, and appropriateness of a person's identification as a male or female being is an important index of one's psychological health (Erikson, 1950).

Most societies have differential expectations concerning what is appropriate behavior for the occupant of either the male or female role. Appropriate behavior is generally rewarded and inappropriate behavior usually punished. If rewards can be taken to signify success experiences and punishments failures, it can be seen that the adoption of an appropriate sex-role identification should tend to enhance a person's health. This argument is founded on the assumption that success (reward) is a more favorable condition for the development of psychological health than failure (punishment). Congruence with the culture's sex-role expectations is then a crucial developmental factor. Its importance is increased when one considers that sex-role expectations permeate more aspects of an individual's life than any other role he might play. A person can either permanently or temporarily disassociate himself from many of the roles he normally takes, but this is most difficult when your physical being marks your role membership.

Rationale

The learning of behavior considered to be sex-role appropriate is a continuous process. The culture's expectations are imposed upon the individual through-out his life: first by his parents and other adults close to him, later the adolescent peer culture, then the adults he interacts with, and always the mass media. The acquisition of appropriate sex-role behavior is recognized as a fundamental aspect of total personality development and adjustment. It is increasingly being recognized "...that difficulties or distortions in sex-role adjustment appear to be functionally related to the occurrence of personality maladjustment and certain forms of emotional disorders" (Brown, 1957, p. 197). That this is so can perhaps be accounted for by the fact that many aspects of the sex-role are imposed upon the individual by the culture with little concern for the person's native endowments, or personal predilections (Hartley, 1959). The pattern is set and rewards await those who conform, punishments for those who do not. Confronted with a rapidly changing body and a norm establishing peer culture, the adolescent has the problem of establishing a sex-role identity that will satisfy diverse bodies: his parents, peers, and himself being among the most important. That psychological unrest or even maladjustment are sometimes resultants seems quite understandable.

Pressured by the power of the norm establishing groups, the individual often adopts a sex-role identification that at least in part conforms with expectations. However, these "cultural norms are often functionally unsuited to the social situation in which they apply. Thus they may deter an individual from a course of action which would serve his own, and society's interest best" (Komarovsky, 1946, p. 184). Consider the boy who loves to write poetry, but; the girl who wants to excel in physics; but both fail to because their cultures have deemed these behaviors as relatively inappropriate for someone of their sex. Komarovsky found in a study of college students serious contradictions between the conflicting roles of college students and that believed to be appropriate feminine behavior. One girl wrote:

> How can I be expected to pursue any course single-mindedly when some where along the line a person I respect is sure

> to say, "You are on the wrong track and are wasting your time." Uncle John telephones every Sunday morning. His first question is: "Did you go out last night?" He would think me a grind if I were to stay home Saturday night to finish a term paper (p. 185).

The achievement of a sex-role identity then has implications for both mental health and academic achievement. Information regarding peer norms for sex appropriate behavior, and sex-role identity should prove to be valuable in the prediction of academic success. It might also identify factors that are retarding the achievement of some students.

The primary problem of this investigation was to determine the relations among SRI, scholastic aptitude, GPA, SE, and SCA. The secondary problem concerned determining the relations between SRI and mother's level of education (MED), father's level of education (FED), and mother's work status (MWS). Ancillary hypotheses concerning SRI and grade level, SE and grade level, and SRI and the plans of high school seniors were also tested. The relevance of these variables and the rationale for the hypotheses to be tested are clarified in the review of the literature section.

Research Questions and Hypotheses

The problems to be investigated will be studied by attempting to answer a set of primary research questions, selected secondary questions, and certain ancillary hypotheses, as follows:

Primary Research Questions

1. To what extent is SRI (Sex-Role Identity) related to SCA (Self-Concept of Ability)?
2. To what extent is SRI related to SE (Self-Expectation)?

3. To what extent is SRI related to GPA?
4. To what extent is SRI related to academic aptitude? (scores on the Henmon-Nelson (H-N) Test of Mental Ability.
5. To what extent does SRI contribute to the prediction of GPA?

Secondary Research Questions

1. To what extent is SRI related to mother's education level (MED)?
2. To what extent is SRI related to father's education level (FED)?
3. To what extent is SRI related to mother's work status (MWS)?

Ancillary Hypotheses

1. Twelfth-grade girls are significantly lower in SE than are ninth-grade girls.
2. Twelfth-grade girls score significantly higher on SRI than ninth-grade girls.
3. Senior girls planning to go to college score significantly lower on SRI than do senior girls who do not plan to go to college.
4. Senior boys planning to go to college score significantly lower on SRI than do boys who do not plan to go to college.

Basic Assumptions

The following are the assumptions made by the researcher that influenced the selection of the problem, research methodology, and the conclusions he reached:

1. The individual has a self-concept that influences the responses he makes to internal and external stimuli.
2. The individual's self-concept is influenced by the expectations other people hold for him.
3. The set of expectations that concerns the relevant subculture's norms for masculine or feminine behavior are significant to adolescents.
4. In response to these normative pressures the adolescent develops an identity as either a male or female--a sex-role identity.
5. Developing a sex-role identity is an ongoing process.
6. Achieving a sex-role identity is one aspect of achieving an over-all sense of identity: Identity development is one of the basic struggles, or developmental tasks, of adolescence.
8. Individuals are aware of the differentiated patterns of behavior for boys and girls, and can and do communicate them.
9. Individuals are partially aware of their self-concept and instruments can be used to facilitate communication of it.
10. The instruments employed in this research are to a considerable measure valid instruments for the measurement of sex-role norms and sex-role identification.

Definition of Terms

This research primarily involved ascertaining the relations among various intellectual and non-intellectual factors in adolescents. So that this research may be understood and criticized for reasons other than a lack of understanding, definitions of the important, and perhaps ambiguous, terms are presented below. Operational definitions for these terms are presented in the third chapter.

1. Sex-Role Norms: A subculture's expectations of appropriate behavior for males and for females.
2. Sex-Role Identity: The extent to which a person has incorporated into his various response hierarchies those responses that the relevant subculture has deemed to be either more appropriate for the male or female.
3. Self-Concept of Ability: A set of self-referent statements that an individual in the student role either accepts or rejects regarding his ability to achieve scholastically, (Binder, 1965).
4. Self-Expectations: The ways in which a person perceives himself behaving in situations one would usually encounter as a secondary school student.
5. Academic Achievement: A person's level of scholastic success as reflected by the data gathered for this study and the derived measurement scale used.
6. Academic Aptitude: A set of personal characteristics that are partially indicative of the success a per-

son can expect in academic endeavors, this "set" being inferred and evaluated from a person's responses to an instrument designed to provide quantitative measures of these factors.

7. Parental Educational Level: The amount of formal education each parent has had according to the responses of their child/children to a questionnaire (Appendix A).

Limitations of the Study

This study is limited by the fact that it is a field study, that the findings are most valid only when generalized to the population area, and that testing conditions were not always optimal.

Regarding field studies, Kerlinger (1965) has written:

> Despite these strengths, [realism, significance, strength of variable, theory orientation, and heuristic quality] the field study is a scientific weak cousin of laboratory and field experiments. Its most serious weakness, of course, is its ex post facto character. Thus statements of causal relations are much weaker than they are in experimental research. To complicate matters further, the field situation almost always has a plethora of variables and variance.... In an experimental study, these variables can be controlled to a large extent, but in a field study, they must be related somehow to achieve whatever degree of control we can get by more indirect and less satisfactory means (p. 390).

The sample group for this research comes from a student population in an area that has been deemed representative of rural Wisconsin. It would be best to restrict projecting the findings and implications of this study to the population area, and then, with far less certainty, to similar rural areas through-out the state and adjacent states.

Testing was conducted in large group sessions, at times with groups of slightly over a hundred students. Some students conferred with each other, but for most students and on most items no, possibly contaminating, discussions were held. This researcher felt that the group testing was not a serious impeding factor.

Summary

It is important for a person to develop a significant amount of his latent potential for learning. This requires the identification of a person's abilities,providing a climate that is amenable to learning and a student who wants to learn. The subculture's sex-role norms, and an individual's sex-role identity were postulated as factors that might either facilitate or impede the achievement of educational objectives.

Relevant research questions and hypotheses were formulated. These and the assumptions basic to the research were primarily derived from research findings and theoretical positions that are presented in the second chapter. Definitions of key terms and the assumed limitations of the study were also presented in this chapter.

CHAPTER II

REVIEW OF THE LITERATURE

The nature of the problem and the specific purposes of this investigation were discussed in the preceding chapter. This chapter presents a review of the relevant literature that: (1) briefly reviews the major theories of sex-role identity and development; (2) serves to clarify the relevance and significance of sex-role identity as it is related to scholastic achievement; (3) delineates the theoretical positions and research findings upon which the research questions and hypotheses of this study were based, and (4) briefly relates why this researcher felt it was necessary to design an instrument to measure sex-role identity specifically for this study.

Sex-Role Development and Sex-Role Identity

The general relevance and significance of sex-role identity was discussed in the preceding chapter. Further elaboration, however, should help to establish the importance of the research and lead into the body of the review that begins with sex-role development and identity.

Below are short statements by Havighurst (1953), Erikson (1950), and Bieliauskas (1965). Each reflects their concerns and biases, but all expound the importance of sex-role identity.

> Behaving in a masculine fashion for the boy and a feminine fashion for the girl is an important developmental task at any age. What is "masculine" or "feminine" may vary from

> one social class to another (Havighurst, p. 96).

In a similar reference, Erikson wrote:

> The danger of this stage adolescence is role diffusion. Where this is based on a strong previous doubt as to one's sexual identity, delinquent and outright psychotic incidents are not uncommon. If diagnosed and treated correctly, these incidents do not have the same fatal significance they have at other ages (p. 228).

On a more philosophical level and encompassing almost the entire span of a human's life Bieliauskas wrote:

> In reality, every human being exists not as a human being but as a man or as a woman. For a man to be a man, and for a woman to be a woman is to be what one is supposed to be. Philosophically speaking, it is good for a being to be what it is supposed to be. Therefore for a man to be masculine and for a woman to be feminine is that which makes each an authentic human being, and enhances the maturity and richness of personality. (p. 262).

Bieliauskas' contention concerning the importance of "a man to be masculine and for a woman to be feminine" seems to be reasonable, but what does the statement mean? All human societies have been found to have differentiated patterns of expected behavior for men and women; each society determines what is appropriate male or female behavior (Mead, 1935). These masculine-feminine expectations vary from culture to culture, and among classes, communities, and families (Benedict, 1934). There is also variance within subcultures because of age distinctions.

> Moreover, social demands vary as a child grows older, so that a pattern of responses that has been encouraged at one stage of development may later be considered inappropriate and consequently requiring modification (Bandura & Walters, 1964, p. 12).

Behavior is relatively controlled because societies, subcultures, and communities develop "a system of well-defined 'psychological niches' for which individuals are specially trained, and into which they are fitted" (Crutchfield, et al., 1962, p. 310). One of the major "psychological niches" is the age-sex category. This category is commonly differentiated: boy, girl, adult male, adult female, old male, old female. Behavior at each level is determined by society's expectations:

> For every recognized position there is an expectation widely shared by members of the community of what _should be_ the behavior of persons who occupy that position. What a typical occupant of a given position is expected to do constitutes the _role_ associated with that position (Crutchfield, et al., p. 310).

In a comprehensive review of the development of the concept of "social role," Binder (1965) distinguished between a static and dynamic definition of "social role," a static role being "a set of prescriptions and pressures which guides, supports, or limits the individual's performance in the social system" (p. 13). A dynamic view of social role takes into account how each individual behaves in view of these expectations. Sargent (1950) seemed to view social role in this manner when he defined it as "a pattern or type of social behavior which seems situationally appropriate to the individual in terms of the demands and expectations of those in his group" (p. 279). It appears that both society's expectations and the role occupant's personal predilections must be accounted for in explaining role behavior. As the occupant of a position, a person learns what is expected of him and his role behavior is influenced by these expectations. But if this were the only factor there would be no variety in role performance. That there is variety probably can best be accounted for by differences in psychological and physiological composition.

Roles are, then, only partially fulfilled in accord with the expectations, or rules, that are supported by the relevant groups. To a large extent man follows these rules, but that man follows rules implies that he is often prone to act contrary to them, (Szasz, 1961). There is a certain degree of flexibility which allows people to exercise their uniqueness, but it is not unbounded. Generally, relative conformance results in reward, excess divergence in punishment.

The above, of course, also applies to learning a role that is appropriate for the male or female position a person occupies. Sarbin, (1954) has written:

> Early in life the child is taught acts which are differentiated, for example, according to sex. Little boys are rewarded or punished for certain kinds of actions. Thus begins the acquisition of actions for the later performance of one's generalized sex role (p. 226).

Children in subcultures are trained to conform to subcultural role expectations for masculine or feminine behavior (Milner, 1949). These expectations are "mediated to the individual child early in life by persons in contact with him--first by his parents and other adults close to him, and then by his peers and adults with whom he comes into more casual contact" (Hartley, 1959, p. 457). Because of sex-differentiated expectations and training the female generally develops a constellation of personality characteristics typical of her sex, and likewise for the male (Milner, 1949). The individual comes to identify as a member of one of the sexes and hence develops a sex-role identity. The above is hardly controversial, but the question of the dynamics of acquiring a sex-role identity is fraught with controversy.

Sex-typed behaviors appear early and since the child is primarily in contact with his parents, aspects of the dynamics of family relations are stressed in various identification theories. Parental warmth, aggression and power are the variables most often studied. Learning theorists believe that identification represents the "child's desire to reproduce the behavior of an affectionate, rewarding parent" (Hetherington, 1966, p. 1). The process is referred to as anaclitic identification. Developmental identification theory stresses the imporance of the parent being perceived as a powerful source of rewards and punishments (Parsons, 1955). Defensive identification theory (traditional psychoanalytic theory) emphasizes "identification with the aggressor, a process involving the acquisition of the behaviors of a punitive or aggressive model based upon anticipated punishment and threat" (Hetherington, 1966, p. 2).

The latter theory asserts that children initially identify with the mother, but then masculine identification with the father begins during the Oedipal phase. The switch is motivated by fear of the father, and an attempt is made to placate him by identifying with him (Mussen & Distler, 1959). According to Hetherington, who has done extensive work in this area, the evidence in support of this theory is scanty, with most of it from clinical case studies (Hetherington, 1966). According to Sarnoff (1951) three conditions are essential for producing identification with the aggressor: a hostile person directing his aggression against another (the victim); the victim is dependent on the aggressor; a stressful situation that prevents the victim from escaping. In studies of the identification process under varying patterns of family dynamics involving warmth, power and aggression Hetherington (1966) found some support for the defensive identification theory; but more for those theories in which warmth and power are the variables.

In addition to the lack of supporting research evidence many scholars hold doubts even about the validity of the Oedipal Complex. It has been asserted that the family dynamics which were believed to be sexually determined and given the label "Oedipal Complex" are in most cases misconstrued as to their origin. Sullivan (1953) felt that the Oedipus Complex is the result of the same-sex parent applying punishments and restrictions in a more arbitrary fashion. With a child of the opposite sex the parent feels less certain and is more likely to be reasonable and circumspect in his approach. Sears, et al., (1946) have stated that the parent of the same sex provides the greater frustration and the more rigid control in relation to sex-typing. Objecting to the traditional psychoanalytic concepts, but for different reasons than the above, Thompson (1951) remarked that the classical picture of Freud's Oedipus Complex may be valid; but "only when the parent has erotic interests in the child and the child's sexual interest is stimulated to a point of becoming a problem" (pp. 39-40). It seems that in addition to a lack of supporting research there are theoretical and empirical reasons that cast doubt on the validity, or at least the generality, of the defensive identification theory.

In contrast to the defensive identification theory, there is a significant amount of research that supports the two other--but very similar--theoretical positions. Sears, et al. (1946) found that masculine identification with the father, and masculinity of attitudes were positively related to the father being warm, affectionate, and rewarding. A later study by Sears (1953) is in accord with the above. Mussen (1959) found that the boys who were more closely identified with the masculine role depicted their father as relatively powerful sources of both rewards and punishments, and that they were relatively more nurturant than the fathers of low masculine boys. According to learning theorists (Bandura & Walters, 1964) rewards and punishments are most effectively dispensed by a person who is viewed to be in a powerful position relative to the person being affected and the situation (behavior) involved. With respect to the masculine identification of a boy it seems that the father should be perceived as the dominant figure in family dynamics. Research evidence supports this view.

Greenstein (1961) found that masculine identification was related to father closeness and power. While father salience and dominance were found to be most strongly related to masculinity; father dominance was the most important factor in predicting the degree of boys' masculinity. Freedheim (1961) determined the masculinity (It Scale and teacher ratings) of 139 boys in grades 3-5, and their perception of parental dominance in three areas. It was found that the boy's perception of his father as a decision maker was the best predictor of the boy's masculinity. Those who viewed their father as the dominant decision maker in the family were highest on masculinity. It may be that decision-making dominance reflects the extent to which the father models the appropriate cultural role. Hetherington's (1965, 1966) findings are consistent with the above and tend to support the notion that the child identifies with the parent who is in the strongest position to dispense rewards and punishments. She studied the effects of parental dominance on sex-role preference, parent-child similarity, and child imitation. Her findings regarding dominance were as follows:

1. Parental dominance influences sex-role preference.
2. Sex-role preference is more appropriate when the father is dominant.
3. Children tend to be more similar to the dominant parent.
4. In homes where the father was dominant the boys identified more with him than in homes where the mother was dominant.
5. In father dominant homes girls identified equally with both parents and the similarity between mother and daughter did not differ than that in mother dominant homes.
6. Children of both sexes imitated the dominant parent more.
7. The disruptive effects in achieving an appropriate sex-role were greater for boys than girls in homes where the mother was dominant.
8. Boys from mother dominated homes were more feminine

in sex-role preference at ages 4-5 and this persisted through ages 9-11.

9. Girls from either mother or father dominated homes did not differ in sex-role preference at any age.

Parental dominance appears to be an important factor in sex-role identity for both boys and girls, but dominance seems to be relatively more important for boys and warmth for girls. Maternal and paternal warmth were found to increase femininity in girls (Hetherington, 1966). Mothers of high femininity girls were rated higher in warmth than other mothers (Mussen & Rutherford, 1963). That paternal dominance appears to be the prime factor in the appropriate sex-role identification of males can probably be accounted for by two reasons. With increased paternal interaction identification with the male role and breaking of the anaclitic bond with the mother is facilitated by having a male parent who, relative to the mother, is in a more powerful position to dispense rewards and punishments. Also, by being the dominant parent he presents a paradigm of the male role which in "our culture is basically an instrumental one in which the male is oriented toward controlling the environment and is encouraged not to permit affective responses toward or from others to deter him from this goal" (Hetherington, 1966, p. 3). In contrast, the feminine role is resplendent with affective type responses and hence helps to account for warmth being such a salient factor in females' sex-role development.

Deciding whether developmental or learning theory comes closest to congruence with the research facts seems to be neither too profitable nor important. Learning theory seems best to explain the sex-role development and identification of girls, while developmental theory seems most relevant for boys. The profitable point is to note that sex-role identity and development are to a significant extent different tasks for males and females, different because of at least three factors: (1) the male role is accorded more prestige in our culture, (2) the children are generally more in contact with the mother, and (3) the latitude of acceptable behavior for the female is generally wider than for the male.

The girl finds the female model readily available in the form of her mother, but the male who originally identifies with the mother must break this bond and identify with the male role--a role modeled by the less available parent. For this reason it is believed that the father serves to supply the major outline of what is appropriate masculine behavior, but is not present enough to provide the details (Lynn, 1962). The boy looks more to his peers for positive guides of appropriate male behavior. "For a boy then, contact with, and acceptance by his peers is tremendously important, because he has to look to them to fill in the gaps in his information about his role as a male, and he has to depend on them to give him practice in it" (Hartley, 1959, p. 459).

Hartley (1960) in fact found that boys resemble their fathers in personality and attitudes less than girls do their mothers. In a study with children from three to five years of age in which doll play was employed, girls were found to imitate their mothers more than their fathers in adopting the feminine role; whereas with boys, adoption of the masculine role was independent of their tendency to imitate the father more than the mother (Hartup, 1962). Lynn (1959) adequately summarized the situation when he wrote: "Consequently, males tend to identify with a cultural stereotype of the masculine role, whereas females tend to identify with aspects of their own mother's role specifically" (p. 130). The research findings of Gray (1956) and Lazowick (1955) tend to support Lynn's conclusions. Empirically we can note "that boys are encouraged to be more oriented toward independence from the family and toward extrafamiliar influence and values. In contrast, girls are encouraged to sustain their early orientation toward the family" (Hetherington, 1966, p. 25).

Despite the fact that the girl has a closer and more accessible model of feminine behavior it is believed that the acquisition of an appropriate sex-role by her is a more complicated developmental process than for the male (Hartup & Zook, 1960). This contention is based on the grounds that the male role is more prestigious, and that the female is allowed more latitude in sex-typed behavior. The research evidence is more consistent regarding the latter factor than the former. Open role commitment and lesser sex-typing have been found to be more characteristic of girls than boys, (Brown, 1956). More stringent demands are placed on boys than girls to know what is proper for their sex and to behave that way (Hartley, 1959). Hardesty (1964) found that boys were more aware of the girl's role than girls were aware of the boy's role. She suggested "that in contrast to sex-role development in girls, the dynamics of the negative directive play a leading part in the development of the sex identification of the boys, forcing an awareness of the opposite sex-role activities for the purpose of avoiding them" (p. 50).

Plainly, it is safer for the girl to cross over into the boy's area of behavior. Even by the third grade there is lower permissiveness for sex-inappropriate behavior in boys than in girls (Walker, 1964); and greater rigidity for boys than girls in their sex-role (Hall, 1964). It appears that even though the male might be punished more for diverging form the male sex-role, and hence be under more pressure, his task is easier because appropriate behavior is more clearly defined and impressed on him. The girl is less restrained from crossing over into masculine areas, but because the boundaries are less rigid, making distinctions between male and female behavior would be difficult and ambiguous, eventually somewhat frustrating. Her position is also less envious when we consider that the male role is generally accorded more prestige than the female role (Brown, 1962).

When one considers that "the acquisition by the child of normal sex-role behavior is a fundamental aspect of total personality development and adjustment" (Brown, 1957, p. 197) it can readily be understood that a child who views his or her sex-role as less favorable than the other sex is in a precarious situation. It appears that girls are more often in this position, but the evidence is far from unequivocal. Freud (1956) and Adler (1927) believed that girls had difficulty accepting the feminine role on account of feelings of inferiority. For Freud it was inferiority partly because of a lack of a penis. Adler attributed it to the fact that the feminine role has generally been associated with weakness and lowness.

Much of the work in this area has involved the use of the It Scale. This scale is made up of 36 picture cards of objects and figures socially defined and identified with the masculine or feminine roles in this culture. The projective element in the It Scale is a child-figure referred to as "It" which is used to facilitate the child's expression of his or her own role preference. The It figure was intentionally drawn so that it would be ambiguous and relatively unstructured as to sexual identity. One section of the instrument has the subject choose for It among pictures of toys--eight masculine, eight feminine. In the parental role section the subject is asked if It would rather be a mother or father (Brown, 1957).

In a study of over 600 boys and girls from age 5-11, Brown (1957) found that at all ages girls were significantly more variable in their choices, and from grades K-4 boys showed a stronger preference for the masculine role than girls for the feminine role. In fact, the girls showed stronger preference for the masculine than the feminine role. In another study by Brown (1956) in which the It Scale was used, girls from 5-6 years-of-age were found to have a mixed preference pattern twice as frequently as boys. Boys generally had a stronger preference for the masculine role than girls for the feminine role, and while only ten percent of the boys indicated a preference for the feminine role, thirty-three percent of the girls indicated a preference for the masculine one. The findings of other studies in which the It Scale was used--Brown (1957), Hall (1960), Handy (1954), Hartup (1960), Hogan (1957), and Lowe (1957)--all support the above in asserting that young girls are less satisfied with the feminine role than boys are with the masculine role.

There may be at least one flaw in the make-up of the It Scale, but it is enough. Is It really neutral or is "he" in fact perceived by both sexes as masculine? In a study in which It was concealed in an envelope boys were found to be the more variable, and to have a greater preference for the feminine role than the girls did for the masculine role (Lansky, 1963). When the subjects were asked to make a choice for themselves and not for It girls were found to have as much preference for the feminine role as boys for the masculine role (Leftkowitz, 1962). What seems to be wrong? Why the contradictory results? Perhaps the conflict is due to It himself. Brown (1962) wrote: "There may be sufficient ground for assuming that, in our traditionally masculine oriented culture, any human figure not clearly structured as female will tend to be seen as male" (p. 477). It has since been suggested that more work must be done in revising the It Scale or developing an entirely new instrument.

Results from studies in which instruments other than the It Scale were used offer some support for the premise that females are less satisfied with their sex-role than are males with theirs. Minuchin (1965) studied 105 nine-year-olds using interview and projective methods. He found girls to be more open and flexible and less sex-typed than boys in role commitment, but boys and girls generally showed equal preference for their own sex. Brown (1957) reported that between 2.5 and 4.5 percent of adult males compared to twenty to thirty percent of adult females report an awareness of a desire to be of the opposite sex. McJee and Sheriffs (1957) found that both college men and women regard the male role more favorably than the female sex-role. In support of the hypothesis that both men and women strive for masculine values, the administering of a test of mental masculinity and femininity to students at the University of Chicago revealed that the scores of both men and women shifted toward the masculine end of the continuum after the subjects had been informed of the purpose of the test.

In lieu of the wealth of contradictory findings drawing any conclusions may be hazardous but necessary. At this culture's present phase of evolution in its attitudes toward males and females, it does truly appear easier for the male to develop a sex-role identity that will be acceptable to himself and others--but even the male is confronted with factors that might result in serious conflicts. Despite the proximity of the mother, girls seem to have a harder task because limits on appropriate feminine sex-role behavior are to some extent more flexible than for the male. This results in a situation where the winnowing and sifting of right and wrong is made more difficult. But even after discerning what is the appropriate feminine role, she may not be satisfied with a role prescription that connotes less prestige than the male's, and does little to help her resolve a conflict over whether to devote her energies to a family or to a career. Because the masculine role appears to be more clearly defined and because it is generally more prestigious the male is not confronted with as many impeding factors as the female. However, the ingredients for negative effect seem to lie in the greater clarity of the role and the lesser amount of divergence. What pressures there must be on the male who openly defies convention, or for that matter the male who even contemplates it! Although the problem of acquiring a sex-role identity is generally more acute for the female, it is fraught with conflicts and frustrations for both.

Frustrations and conflicts are probably an inherent part of acquiring, maintaining, and modifying the sex-role identity, as they probably are with any other role, but adolescence appears to be a period when these factors are at a heightened stage. Usually moving in a direction of greater independence from the family and more concern for the values and opinions of others, adolescents are forced to resolve the plethora of conflicting opinions, attitudes and values that confront them concerning their sex-role as well as other issues.

Considering a maturing body and the realization that adult responsibilities are approaching, the importance of resolving conflicting ideas for oneself and establishing a fairly stable and personally satisfactory sex-role can be appreciated. Somewhat paralleling the above and stressing the significance of the peer group Harsch and Schrickel (1950) wrote:

> The biological maturity of the adolescent meets the physical demands of masculinity and femininity set by our society, but the behavioral, attitudinal, and emotional means of realizing

> these values have yet to be learned. The familial situation facilitates or impedes this learning as the case may be, but it is the agemate reference group--"the crowd" to which the adolescent belongs--which provides the frame of reference for so many of the attitudes and values he is acquiring. And this group, probably more than any other, aids him in developing masculinity and femininity. His peer culture provides the adolescent with immediate rewards and punishments which guide his efforts to achieve adult sex status and male or female selfhood (p. 209).

Booth's (1964), and Douvan and Kaye's (1957) research tends to support the assertion that the most salient factor affecting sex-role development during adolescence is peer group pressure.

Confronted with profound and at times conflicting pressures the adolescent must struggle to develop a sex-role that will satisfy both himself and those of importance to him. The latter alone is a most difficult situation, how difficult it can become is illuminated when one considers the rapidity of change in what is considered as appropriate masculine or feminine behavior. How the adolescent resolves these pressures and conflicts may affect almost every aspect of his life and personality. In the following section the focus will be on educational implications.

The Relation Between Sex-Role and Education

A teacher's function may be viewed as one in which he is engaged in reinforcing certain behaviors, extinguishing or not reinforcing others, or serving as an exemplar for various behavior patterns. Teacher effectiveness is partially contingent on how the student perceives him. Students' perceptions are probably influenced by their opinions of the different sexes and the nature of their sex-role identity.

Epstein (1962) conducted a verbal conditioning experiment with 135 boys age 5-7. The subjects' sex-role identities were determined by means of the It Scale and some projective measures. He found that those higher in masculinity conditioned significantly more readily than the others and that the "highs" responded more to a "father" response set than to one conditioned to be regarded as "mother." The "highs" were conditioned more effectively by male experimenters than were the "lows." This was interpreted to indicate that the lows were in a state of conflict regarding their sex-role identity and that this conflict served to reduce the reinforcement value of either males or females. Evidence in support of the above laboratory experiment comes from studies by Anastasiow (1965) and Biller (1965). Kindergarten and first-grade boys who were high in masculinity scored significantly higher on reading achievement tests and on a number of scales were rated more favorably by their teachers than were their classmates who had either inconsistent or inappropriate sex-role identities (Anastasiow).

The psychoanalytic explanation of the above has been offered by Anastasiow. With the resolution of the Oedipal situation, and in passing into the latency period with the development of the superego the child is ready for further learning. "To the Freudians, it is no accident that most cultures begin school at the age of six, the age when the postulated Oedipal situation is resolved and sex-role identification has taken place" (p. 1054). Whether one chooses to couch his discussion of the ramifications of sex-role identity and development in psychoanalytic terms, learning theory, or on any other basis, it appears reasonable to believe that the educative process, which even at this time is still mainly an interpersonal event, will be affected by one's sex-role identity and how he or she perceives members of either sex. The following is a partial and extreme example of this:

From interviews with males age 8-11, Hartley (1959) found an anxiety press to avoid displaying feminine traits. She felt that the biggest conflict is that from birth the male is supposed to be strong in masculine traits, but is constantly under the thumb of women. She ordered reactions to these socialization pressures into four configurations. The case of T. D. illustrates the most extreme reaction: "over-striving with explicit hostility expressed against the opposite sex and with marked rigidity concerning the differentiation between the role activities assigned to men and those assigned to women" (p. 463). Concerning women doing men's jobs T. D. said, "No, women never do that. I think it isn't right for them to do it. Who asked them to do it? I don't trust women doing anything" (p. 463). Concerning working wives: "I don't like women working. They get in the way. I don't care for females. I don't like females. I say that men could live better by themselves." Regarding something men should never do he responded: "Taking care of the house" (p. 463).

Interviews with his teachers disclosed that he is quiet and withdrawn in class and they knew very little about the boy. He day dreams a good deal of the time. Hartley wrote:

> He evidently has no intention of letting his teacher, who is one of the despised and exploiting females, get close enough to him to sense the quality of his thoughts, nor

> has he any intention of producing any work for her. He presents a clearcut example of passive resistance. Knowing how he feels about women in general, we are not surprised that he takes refuge behind a blank facade in her presence (p. 465).

When one considers the preponderance of female teachers at the elementary level and the fact that school is generally a place where more feminine values and behaviors are rewarded, one can appreciate the situation the boy was in--especially one who is unsure and defensive about his sex-role. The female seems to be in a better position as far as favorable relations with teachers and school values. But with adolescence and the increasing awareness of the culture's differentiated expectations for men and women, as reflected by the peer group and significant adults, it is questionable whether the female remains in the more enviable position. Perhaps the position is less enviable now in terms of conflicting pressures over doing well in school work, deciding on future plans, and generally knowing how to behave.

Adolescents in this country comprise a sub-culture that reflects both the normative expectations of the larger culture, and their own unique contributions concerning appropriate role behavior. One set of norms concerns the differentiated behavior of boys and girls, including behavior within the realm of academic achievement. Coleman (1961) wrote:

> The means through which the adolescent society has these effects is primarily the rewards and punishments it dispenses among its members. These rewards and punishments include popularity, respect, acceptance into a crowd, praise, awe, support and aid, on the one hand, or isolation, ridicule, exclusion from a crowd, disdain, discouragement, disrespect. As in the larger society, these rewards and punishments, coming from others who are important to a person, exert a powerful influence on his subsequent equanimity (p. 314).

Coleman found that over all the high schools he studied the general pattern of grades was consistent with the reward structure for grades. Girls are expected to do well in school, but not to excell beyond the level of the better male students. Girls' grades were found to vary from one class to the next less than did boys'. Seemingly, boys do better in subjects they are expected to do well in and relax in subjects not so valued (Coleman, 1961). These results are an indication that the norms for male and female behavior influence a student's academic achievement. For the boy or girl to deviate from what is felt to be appropriate for one of their sex could result in the loss of social rewards. Coleman wrote, "...but if she wants dates and popularity, she is constrained from working up to her scholastic capacity. Consequently, many of the brightest girls manage to hide their intelligence, leaving somewhat less bright girls to be named as best scholars" (p. 255). However, this is not the case in all schools; it is likely that in some areas academic achievement is highly rewarded.

Further evidence in support of Coleman's contentions comes from studies conducted as part of the Rennebohm Educational Development Project (Project RED), a project designed to study and guide rural Wisconsin youth. Kellams (1966) found that there was no significant difference between boys and girls in academic ability as measured by the Henmon-Nelson. However, girls had a significantly higher GPA. In contrast, thirty-seven percent of the boys versus twenty-five percent of the girls went on to college. Whereas there was apparent stability in boys' plans for post-high school training (it was a cross-sectional study contrasting ninth-graders with twelfth-graders), a significantly smaller number of senior girls aspired to post-high school training than freshman girls. Significantly more twelfth-grade girls than ninth-grade girls planned to work after the completion of high school. This change might reflect conformity to norms that tend to make post-high school educational training incompatible with the preferred feminine role.

That there are norms for girls which mediate against superior academic achievement and a desire to go to college is offered further credence by the findings of Binder (1965). Binder found that nearly all of the significant self-expectations statements for boys were different from girls. Ninth-grade girls were found to have significantly higher self-expectations (standards of scholarship) than twelfth-grade girls. The self-expectations--self-concept of ability relation was also significantly higher for the ninth-graders. For the above there was no difference between ninth- and twelfth-grade boys. Self-expectations contributed significantly to the explanation of GPA variance for all groups but ninth-grade girls. Jones (1966) found this true for twelfth-grade girls. One implication of these results seems to be that the combination of (1) greater interaction with the adolescent peer culture, and (2) more pressure being applied by adults regarding what is appropriate feminine behavior helps to make college fade as an appropriate goal for girls as they grow older. With this diminution it is no longer imperative to hold high expectations of one-self as a student. Binder concluded:

> It is possible that the twelfth-grade girls, although still living with some of the conflicts of the feminine role, have

> added maturity and experience with which to fashion realistic standards for their own behavior in the role of student, which parenthetically, cannot be isolated from the role of women (p. 136).

Rather than credit the change to greater maturity, could it not be attributed to change in the face of counter pressures from peers and parents? Confronted with negative affect because she identifies with aspects of a feminine role (getting a college education) that are not congruent with general expectations of her area, the young girl alters her notions about going to college to make them more congruent with general expectations. This change might tend to reduce the pressure, but only at the cost of securing an education.

Douvan and Kaye's study (1957) of the dreams, hopes, and aspirations of preadolescent, adolescent, and late adolescent girls further demonstrates the effects of cultural norms. Younger girls were found to more often dream of personal achievement, while girls over sixteen mainly dreamed of marriage and motherhood. Douvan and Kaye succintly stated the conflict faced by many teenage girls:

> On the one hand girls are encouraged--often even through the adolescent period--in the pursuit of personal goals very like those for boys. They are taught to seek personal achievement through competitive effort, to develop skills in some area, work to broaden and deepen their experiences through education and work....Juxtaposed with this set of expectations there are those that require of the girl another whole series of behaviors and characteristics generally classified as feminine traits. She should strive for personal achievement, but not be aggressive, develop and broaden her interests, yet not invest so much in them that she will resist yielding these interests during the years when her children are young. (1957, p. 2).

Regarding not being aggressive, Gallagher (1966) found support for the contention that intellectual aggression was not a feminine trait.

In a study of gifted secondary school students he found that girls were significantly less expressive in class, than boys, but this was not so in private. Gallagher wrote: "...the results are suggestive of the possible inhibition of gifted girls' performance due to a group expectation of a less aggressive intellectual attitude for girls" (p. 252). Gallagher's findings are in accord with the opinions and findings of Weiss (1962) and Heilbrun (1963). The basic belief was that scholastic achievement requires, especially at the college level, such non-traditional feminine traits as aggressiveness, independence and competitiveness among others. The female student is in a conflicting situation and often solves it in favor of her femininity at the detriment of her scholastics.

A study by Weiss (1962) was based on the contention that for women to compete with men in college is culturally out of line with the traditional conception of the feminine role and that the coeds will at times behave in ways which inhibit achievement but which assert that they are women. In his study thirty coeds served as the experimental subjects. On the experimental task (squeezing a hand dynamometer), they each competed with a male and a female student; their competitors were experimental stooges who allowed them to win. It was found that the experimental subjects significantly lowered their scores when competing with males and were more socially and emotionally expressive in their company. Weiss felt that this increase in behaviors generally regarded as feminine reflected the subjects' concern over not appearing feminine because they had beaten a male in a test of strength. Although this study does not bear directly on the relationship between femininity and college success, it does tend to indicate that a female's achievement might be retarded if such achievement is not congruent with the feminine role the girl is trying to conform to. Heilbrun (1962) in fact found that failure to make a successful adjustment in college, as evidenced by dropping-out, was related to less need-achievement and need-endurance in women, traits which Heilbrun felt are generally considered to be masculine. Sundhein's (1963) findings suggest that the relation between need-achievement and college success is far from simplex. She found female college students high in need-achievement had grades no higher than girls low on this trait.

In the world of the arts, Farnsworth (1960) has noted that women have achieved little except in vocal music where on account of voice men cannot compete. He felt this is because women accept a role that is incompatible with great achievement. "Women's urge is to be beautiful and loved, man's is to achieve" (p. 106). Farnsworth asked 189 college men and women to rate a number of artistic activities as to whether they were more appropriate for the male or the female. He found that creativity in the arts (i.e., composing, writing, painting), was regarded by both men and women as more masculine. Passivity (i.e., reading books, viewing ballet, collecting paintings), was deemed to be more in the feminine realm. Farnsworth concluded that "so long as women retain this picture of themselves it is likely that relatively few will be willing to put forth the effort essential to sustained creativity" (p. 349).

From the above it seems that to some extent the traditional feminine sex-role impedes success in important areas. When achievement in an area requires behavior counter to that of one's sex-role identity it will usually breed some form of maladjustment. College is such a condition because it requires masculine traits of competitiveness, independence, and assertiveness (Heilbrun, 1963). Hence, it would seem that a less feminine sex-role identity should be conducive to academic success in both college and high school.

At the college level research evidence suggests that a sex-role identity that is neither strongly masculine or feminine is related to scholastic achievement. Using the Mf scale of the MMPI as the criterion score for sex-role identity (Donat, 1959) found that the more feminine men were higher in grade-point-average and ACT scores. No similar relations were found for women. College males have been found to be more feminine than high school males (Nance, 1949), and more feminine than the general male public (Goodstein, 1954). The peak period of masculinity and femininity was found by Terman and Miles (1936) to be during the high school years, with a steady decline later in the direction of femininity for males and masculinity for females. The trend toward a neutral position was found to be most prominent among the better educated. Masculinity was positively related to the amount of education among housewives. A group of *Who's Who* men were found to be low in masculinity, while superior female college students and *Who's Who* women were found to be relatively low in femininity.

Although no definitive causal relations have been demonstrated, there is the implication that a less extreme sex-role identity is seemingly related to scholastic success and the types of achievement that qualifies one for academic excellence. On most sex-role identity instruments a high feminine or masculine score indicates that the person has presumably identified with the traditional masculine or feminine role. The traditional masculine role consists of such traits as courage, strength, lack of emotionality and sensitivity, toughness, and independence. The feminine orientation is almost the opposite. It may be that success today requires a blend of both "masculine" and "feminine" traits. Above average physical strength is hardly an important requirement for most modern endeavors, but traits such as insightfulness, independence, sensitivity, aggressiveness, and understanding appear to be among the important ones.

From a comparative study of creative and non-creative scholarship art students at NYU, it was found that the presence of the feminine component partially distinguished the male creative from the male facile. Other important distinguishing characteristics were a high degree of strength, confidence, determination, ambition, and power. Hammer (1964) referred to this blending:

> It is, then, in a fusion of the feminine and the masculine that the necessary sensitivity and intuition combine with purposive action and determination. The end result is the masculine-feminine blend conducive to the capacity for artistry (p. 414).

An environment conducive to the development of a less traditional (stereotyped) sex-role identity, more of a blend, should help to foster academic success.

Research findings indicate that the mother's level of education and work status are important factors leading to the development of a less traditional sex-role identity. Boys from homes where the mother worked were found to be more apt to assign tasks that were traditionally feminine in nature to males than were boys from homes where the mother did not work. This trend being more marked among the working and lower-middle-class boys than among the upper-middle-class boys whose parents could probably afford to hire someone to do the housework. Hartley (1960) wrote:

> This may mean that these tasks are gradually being incorporated into the male self-concept, so that we may expect acceptance of an increasingly egalitarian division of all life tasks and a parallel diminution of rigid judgmental evaluations about the "manly" or unmanly nature of specific tasks (p. 156).

In addition to the above, Hartley (1960) found that daughters of mothers who did not work picked being a housewife as their first choice for a job significantly more than did the other girls. Daughters of working mothers had significantly more non-traditional job choices and more often felt they would work after they had children. Although Minuchin (1965) did not mention whether the fact that a women worked or not was part of her criteria for determining whether a family was to be considered modern or traditional, her findings are relevant. Girls from modern homes gave a less-sex-typed range of reactions to stimuli and were relatively free from predetermined stereotypes. The modern parents were more apt to treat boy and girl children alike. In a study by Kagan and Moss (1962) children of parents with more education had fewer sex-typed interests. If one makes the assumption, apparently a safe one, that level of education is positively related to the criteria that determine whether a household will be considered modern, then this finding is consistent with Minuchin's findings. Even if not, the finding is in line with research indicating that the better educated are less masculine or feminine on traditional indices.

This investigator was not able to find any research study that dealt with relations among mother's education and sex-role identity, and children's scholastic success and sex-role identity. If one were to draw upon the previous findings mentioned and make some sizeable assumptions, then Witte's (1967) study is relevant. Female college freshmen who were doing best scholastically had mothers with significantly more education than the mothers of the less successful girls. What is needed to make this study more meaningful in terms of sex-role identity concepts would be knowledge of the sex-role identity of mothers and daughters.

From the above discussion no firm conclusions regarding sex-role identity and academic achievement can be drawn, but the preponderance of evidence does seem to at least suggest that a mixed or blended sex-role identity is more conducive to scholastic achievement than either an extreme masculine or feminine one. Extremeness seems to be in terms of identification with a traditional role that might have been functional at one time, but seems to be incongruent with the current trends in male and female behavior. A blending of the traditional masculine and feminine traits is probably an inherent--if not overt--aspect of the requirements for vocational and academic success in an increasing number of instances.

Fortunately, perhaps, the boundaries specifying male-female behavior are becoming more porous--especially among the children of certain types of parents. However, at the college level the delineation is still predominantly along traditional lines, but there are signs of weakening (Reece, 1964). The ideal male is seen as strong; but not harsh, neither considerate nor inconsiderate. The ideal female is vigorous and industrious, but still delicate and graceful. Perhaps, women exaggerate the extent to which men want to keep them from characteristics thought to be masculine, while they expressed a desire to have men become more concerned about interpersonal relations and more expressive of human feelings (Fink, 1962). Then, even among college students, a group that has generally been found to be less extreme in their identification with the traditional roles, there is still significant differentiation along traditional lines. The differentiation serves to impart pressure for people to conform to sex-roles that might not be functionally optimal for academic achievement.

Measuring Sex-Role Identity (Masculinity-Femininity)

Varying with the age of the subjects and the researchers' biases various instruments have been used to measure sex-role identity. A common approach is that first items are gathered that discriminate between males and females, and then others are asked to react to them. A subject's sex-role identity or masculinity-femininity (generally considered a synonymous construct) is determined by his or her reactions to the items. Other commonalities are that the instruments have been used with what appears to be little interest in improving their validity and reliability. In many instances the instruments as developed might be useful in one area, but, because norms of masculine-feminine behavior vary from area to area, they probably should not be used in a different area without revision. The following is a brief account of the instruments that have been used most frequently in recent years, with reference to some of the studies they were used in.

Brown's It Scale (above, p. 25), has mainly been used with children of elementary school age and below (Brown, 1956; Mussen & Distler, 1959; Freedheim, 1961; Lansky & McKay, 1963). Toy and activity preference tests have been used with children of primary school age. Heller (1959) used a test in which a child is presented with six masculine toys and six feminine ones. The child is observed under different conditions to determine which toys he selects and plays with. From work with nursery school boys the test was found to have a reliability of .96 on a group basis and .81 individually. In studies conducted by Fauls and Smith (1956), Heller (1959), and Hardesty (1964) subjects were asked to state their preferences for games or activities represented by pictures. Rosenberg and Sutton-Smith (1963, 1964, 1965) developed and used a 180-item games and play inventory. Walker (1964) used a similar method. He found that Ohio and Connecticut children of the same age differ in their perceptions of what are appropriate masculine-feminine play items and games. This finding tends to indicate that for a meaningful study of sex-role identity and its relations to other variables it is in some cases necessary to first develop norms using part of the population you are going to study.

Franck's Drawing Completion Test has been used in studies by Winer (1962), McCaulley (1965), and Lipinski (1966). Franck and Rosen (1949) worked with limited success on developing a projective test consisting of 36 incomplete simple line drawings. Hammer's (1966) attempts to develop a test of sex-role identity from Rorschach cards have not been successful. Projective devices if further developed would probably be of value, but would be limited in application by its nature and the type of scoring and interpretation needed.

Instruments amenable to group testing have been used with adults, and high school and college students. The Strong Vocational Interest Blank has been used by Mussen (1961), McCarthy and McCall (1962), and Porter (1962). Overall (1963) used the Kuder. The Mf scale of the MMPI and the California Personality Inventory have been used by many researchers. Among those who used the MMPI are Nance (1949), Didato and Kennedy (1956), Lundy (1958), Barrows and Zuckerman (1960), Heilbrun and Goodstein (1961), and Richards (1962). The CPI was used by Mussen and Rutherford (1963), Webb (1963), and Gough (1966). This researcher is aware of no study in which subjects were administered both the CPI and the MMPI; however, studies of sex-role identity have been undertaken in which the MMPI, Strong Vocational Interest Blank, and the Guilford-Zimmerman Temperament Survey were used (Barrows and Zuckerman, 1960, and Nance, 1949).

In Barrows' study the correlations among the instruments were low but significant: G-Z--MMPI (.31), G-Z--SVIB (.34), and MMPI--SVIB (.33). In Nance's the correlations were: G-Z--MMPI (.43), G-Z--SVIB (.28), and MMPI--SVIB (.51). These low intercorrelations may indicate that these instruments are inadequate, or that sex-role identity is multidimensional. Use of the MMPI, CPI, and G-Z in high schools would be limited by the question of invasion of privacy that is often raised. Also, this researcher believes that it is necessary to standardize sex-role identity instruments on at least a part of the population one is studying.

Based on the limitations of the aforementioned instruments and the belief that a sex-role identity instrument should be developed from work with a sample of the population that will be studied, this researcher chose to use a modification of the adjective check list method [details in the third chapter]. The adjectives employed come from Gough's Adjective Check List (1960). Starting with Gough's list of 300 adjectives Birdie (1959) found fifty-one adjectives that discriminated between college men and women. This instrument has a test-retest correlation of .81. Birdie's instrument was used by Ishiyama (1965). Also using Gough's list as the starting point, Heilbrun (1964) found fifty-four adjectives that discriminated between college males and females.

The adjective check list method has the advantage of presenting "a library of descriptive traits covering the widest possible range of behaviors, self-conceptions, and personal values" in a short period of time (Gough, 1960, p. 109). For use in sex-role identity studies it also has the advantage that it is relatively easy to ascertain for each population the adjectives that are discriminating between males and females. In some circumstances it might be of interest to compare the responses of one population with those of another on adjectives that have been found to discriminate on either of the populations.

Summary

The preceding chapter dealt with the theoretical considerations and research findings upon which this study was based. The following statements are highlights or major points of the chapter:

The importance of developing and maintaining a sex-role identity seems to be uncontested; however, this is not the case regarding the development of a sex-role identity. The parental variables of warmth, aggression, and power are the major variables that distinguish one theory from another. The defensive identification theory stresses identification with the aggressor; the developmental theory emphasizes the importance of the parent being seen as a powerful source of rewards and punishments, and learning theory, the child's desire to identify with a warm and affectionate parent. The research seems to indicate that warmth and affection are most important for the female, while having a father perceived as being in a dominant position (powerful source of rewards and punishments) is most important for the male. The validity of the defensive identification theory is viewed skeptically. It seems to explain only a few situations where unique circumstances prevail.

The evidence relating sex-role identity with scholastic achievement is scant, especially at the high school level, but indications are that a less traditional sex-role identity, a composite of masculine and feminine traits, is positively related to academic success. Also, there seem to be certain family conditions that foster the development of a less traditional identity. The researcher briefly referred to some of the instruments that have been used to measure sex-role identity, their limitations, and his reasons for using the adjective method. In the following chapter the sex-role identity instrument employed will be discussed more completely, as will the design and methodology of this study.

CHAPTER III

DESIGN OF THE STUDY AND STATISTICAL METHODOLOGY

This chapter contains a description of the instruments used in this study and the procedures that were followed in the development of the sex-role identity instrument. Selected criteria upon which the population was chosen are presented and the method for selecting the sample is discussed. Operational definitions of key terms, data collection procedures, and the statistical methods utilized are also presented in this chapter.

The Sample

The population for this study was composed of high school seniors and freshmen from eighteen schools located in five rural Wisconsin counties: Adams, Iowa, Manitowoc, Polk, and Price. The five counties have been found to be collectively representative of rural Wisconsin with respect to the following criteria (Schroeder, 1963):

1. Geographic location
2. Diversity of farm type and productivity of soil
3. Farm size and farm investments
4. Availability of vocational, agricultural, and extension services
5. Existence of homogeneous population centers

6. Cooperation from county personnel
7. Existence of low, medium, and high farm-income areas

A detailed discussion of the criteria and selection procedures may be found in Binder (1965), Gretebeck (1960), and Schroeder (1963). Binder also explains how the eighteen schools came to be a part of the Rennebohm Educational Development Project (Project RED). This research study was conducted under the auspices of Project RED and thus students from all of the schools were available for research purposes.

Only nine of the eighteen schools were involved in this study. Each of the eighteen was assigned a two digit number (01 - 18). A two page random numbers table was used for selection purposes (Walker & Lev, 1958). Considering schools from one county at a time, the table was randomly entered. Proceeding downward from the entry point two digit numbers were considered. The first school encountered was one of the four in which sex-role normative data was gathered. The second school from that county was included in the part of the study dealing with sex-role identity and its relations with intellectual and nonintellectual factors. This procedure was followed for all but Adams County because the county had only one high school. This school was included as part of the sex-role identity sample. Hence, there was a sample of one school from each county--except Adams--for the purpose of gathering sex-role norms, and one school from all five counties for the sex-role identity study.

Operational Definitions of Key Terms

Below are operational definitions of terms pertinent to this research:

1. Academic Achievement (GPA): The mean of the grades a subject received for all of the courses he took during the Fall, 1966 semester. Letter grades were converted to numerical grades as follows: A = 4; B = 3; C = 2; D = 1.
2. Academic Aptitude (H-N): A subject's score on the Henmon-Nelson Test of Mental Ability; the scores were converted to T scores.
3. Self-Expectation (SE): A subject's score on Binder's (1965) Self-Expectation Inventory (Appendix B). The instrument is composed of thirty-nine multiple choice items concerning behaviors that have been found to be related to academic success, i.e., grade-point-average (Binder, 1965, Jones, 1966).
4. Self-Concept of Ability (SCA): The total of the scores a subject received on eight multiple choice items (Appendix C) that deal with a subject's estimation of his academic ability (Brookover, et al., 1962).
5. Sex-Role Norms (SRN): A list of adjectives that describe behavior that was found to be either significantly more appropriate for teenage boys or teenage girls (Appendix D).
6. Sex-Role Identity (SRI): A subject's score on an adjective check list inventory (Appendix E). A high score was

deemed to indicate greater identification with the like sex. High scores reflect greater congruence with what the peer culture identified as appropriate sex-role behavior.

7. Mother's Education Level (MED) and Father's Education Level (FED): The number of years of formal education each parent had, as reported by the subject. Responses were segregated into two categories: eighth-grade education or less, and nine or more years of formal education.
8. Mother's Work Status (MWS): Whether the subject's mother worked outside of the home (full-time or part-time), or not at all, as reported by the subjects.
9. Post High School Plans (PHSP): As reported by the subject, via a questionnaire (Appendix A), what he or she intended to do their first year after high school graduation, e.g., college, vocational school, work, service, marriage.

Data Collection

In the Fall of 1966 each of the eighteen Project RED schools was contacted by letter (Appendix F). The letter requested time for data collection and stated some of the researcher's purposes. A tentative visitation schedule was included to guide in scheduling the visit. A week or two later the schools were contacted by phone and final arrangements were made.

Two or three Project staff members visited each school. The

(8)

subjects then reported to the testing area: gymnasium, cafeteria, classroom, or study room. A staff member gave a brief introductory talk that served to introduce the staff members and outline the general purposes of the Project and the need to gather data. At this point the instruments were distributed. After distribution brief instructions were given for each instrument; it was stressed that the subjects should not at any time hesitate to ask questions about the instruments. Special care was given to emphasize that there were no right or wrong answers and that what was wanted were their frank and honest responses. Subjects were assured that their replies would be held in strictest confidence and that neither their parents nor school officials would learn what they had written. During the testing period staff members were available to answer questions and to supervise testing. When a student finished he was asked to bring his papers to the collection post; depending on school policy, he was then to leave or stay. The same procedure was employed in gathering data on the freshmen, except that arrangements for visiting the schools were done exclusively over the phone and testing was conducted during the Winter of 1967.

Grade-point-averages and Henmon-Nelson scores were either sent through the mail or collected during the testing day.

Instrumentation

In addition to the instruments that were designed especially for the purpose of measuring sex-role identity, three other previously developed instruments were used: Binder's (1965) Self-Expectation

Inventory (Appendix B), Brookover's, et al., (1962) Self-Concept of Ability Scale (Appendix C), and Strowig's (1965) Educational Data Form (Appendix A).

Sex-Role Norms and Sex-Role Identity

The development of the sex-role identity instrument for this study was based on the researcher's interpretations of a comprehensive review of the related literature. Although there are norms as to what is appropriate behavior for males and females which permeate almost all subcultures within the United States, there are many differences associated with environmental and social conditions. Spurious findings might accrue if an instrument developed and standardized in an area other than the population area was used. For this research sex-role identity was ascertained from subjects' responses to a modified adjective check list (Appendix E).

The list was composed of 271 adjectives, but only responses to 124 of the adjectives (Appendix G) were scored for sex-role identity purposes. The adjective check list method was used because it is relatively easy to ascertain for the population under study which adjectives are discriminating between boys and girls, and because in a relatively short period of time subjects can respond to adjectives covering a wide range of behavior. The modified check lists employed in this study (Appendices D & E) contained adjectives taken from Gough's Adjective Check List (1960).

The same list of adjectives was presented to subjects in the nine sample schools; every subject was asked to respond to all of the adjectives. In four of the schools the subjects were asked to respond in terms of whether they felt each adjective described a behavior that was more appropriate for a boy or a girl (Fig. 1). In the other five schools they were asked to respond in terms of whether they felt each adjective did or did not describe them (Fig. 2). Different schools were used for the sex-role norms and sex-role identity phases in order to remove the possibility of a subject's sex-role norms' responses influencing his responses to the sex-role identity instrument.

SAMPLE ADJECTIVES	3 Definitely more appropriate for the teenage boy.	2 In most cases more appropriate for the teenage boy.	1 Well, somewhat more appropriate for the teenage boy.	0 Appropriate for either teenage boy or girl.	1' Well, somewhat more appropriate for the teenage girl.	2' In most cases more appropriate for the teenage girl.	3' Definitely more appropriate for the teenage girl.
happy	____	____	____	____	____	____	____
warm	____	____	____	____	____	____	____
daring	____	____	____	____	____	____	____

FIG. 1 Format used for the determination of sex-role norms.

	"Yes, I would generally describe myself as being___."	"No, I would not generally describe myself as being ___."	"Sorry, I can't decide on this one.
happy	___	___	___
warm	___	___	___
daring	___	___	___

FIG. 2 Format used for the determination of sex-role identity.

Sex-Role Norms

The sex-role norms were determined by analyzing the "appropriate behavior" responses of seniors from the four schools involved in this aspect of the research (Table 1).

TABLE I

SCHOOL AND SEX DISTRIBUTIONS OF THE TWELFTH-GRADE SUBJECTS FOR THE ASCERTAINMENT OF SEX-ROLE NORMS

School	Boys	Girls	Total
EK	20	22	42
TO	40	40	80
SP	54	72	126
TN	35	46	81
Total	149	180	329

Note.--Ninety-one percent of the seniors enrolled in the four schools served as subjects.

Only seniors were subjects because it was believed that they would most accurately reflect the predominant high school norms. Seniors have generally been in the school environment longer than other students and it is likely that they have been effected most by the prevalent sex-role norms and have also done the most to shape these norms. Also, because they are seniors it is likely that the behaviors and attitudes they model are to a great extent imitated by subjects in the lower grades. For the above reasons it seems likely that the responses of seniors would most accurately reflect the high school community's most influential sex-role norms.

The binomial test (Siegel, 1956) was used to analyze the responses to the sex-role norms instrument. A subject's response to each adjective was dichotomized as either falling in the "more appropriate for boys" range (3-1), or in the "more appropriate for girls" range (3' - 1'). These categories were established in order to spread the subjects' responses and counter the tendency of some subjects to give a neutral rating regardless of what the item might be, and thus mask true differences. The number of such responses were summed for each adjective. The "0" responses were handled by including half of them in the "boys" range and the other half in the "girls" range. A short example should clarify the procedure.

The adjective "considerate" is one example. There were 329 subjects and hence 329 responses to this adjective; 100 of these fell in the 3-1 range, 189 fell in the 3' - 1' range, and 40 were "0" responses. When these 40 were evenly divided between the two categories the result was 120 male responses as opposed to 209 female responses. Using the binomial test:

$$\underline{z} = \frac{x - NP}{\sqrt{NPQ}}$$

N = Total number of cases
P = Proportion of cases in one category
Q = Proportion of cases in other category
x = Number of cases in one category

the adjective was found to have a $\underline{z}$ score of -4.85, since a $\underline{z} \geq \pm 3.31$

is significant at the .001 level (two-tailed test) this adjective was regarded as representing behavior significantly more feminine than masculine. Following the above procedure 146 of the adjectives were found to discriminate between teenage boys and girls at the .001 level. Appendix G lists these adjectives as well as their significance level when male and female subjects were considered separately.

Of these 146 adjectives, twenty-two were excluded from consideration in determining sex-role identity. These adjectives did discriminate at the .001 level when the responses of the entire population (N=329) were analyzed. However, when the responses made by male and female subjects to all of the adjectives were separated and analyzed separately (the binomial test), each of the twenty-two adjectives failed to discriminate between appropriate male or female behavior at the .05 level for either the female subject analysis or the male subject analysis. The adjective "arrogant" is an example of this. For the entire population "arrogant" was found to be significantly more appropriate for boys (.001). For the female analysis "arrogant" was also found to be significantly more appropriate for boys (.001). However, for the male analysis the adjective was not found to be significant; in fact, the responses were almost equally divided between appropriate behavior for boys and appropriate behavior for girls. This adjective and the twenty-one others were not considered in determining sex-role identity because it was felt that if an adjective validly reflected a cultural norm and had maximum effect in influencing behavior it should be agreed upon by both sexes as being appropriate for one or the other sex. The twenty-two adjectives reached the .001 level because of the extreme influence of one of the groups. In these cases it could have been possible that the extreme reaction of either the male or female group was due to the affect of some artifact that was only indirectly related to sex-role. Inspection of the twenty-two adjectives invites the reader to form his own hypotheses.

As a check on the amount of agreement among the subjects from the four schools the Spearman rank order correlation method was used (Siegel, 1956). As Table 2 indicates the intercorrelations were very high. This was considered to indicate that the population could be regarded as uniform concerning their opinions of appropriate boy-girl behavior, uniform at least in terms of the type of information gathered in the modified adjective check list.

TABLE 2

CORRELATIONS BETWEEN SCHOOLS ON SEX-ROLE ADJECTIVE NORMS

School	TO	SP	TN
EK	.82	.82	.88
TO		.90	.88
SP			.88

Note.--The Spearman rank order correlation method was used because it is the appropriate correlation method to use when the level of measurement of both variables is ordinal.

In order to establish the test-retest reliability of the instrument, its coefficient of stability, the check list was administered for the second time seven days later to group TN. The Spearman rank order correlation method was used. When observations on the entire set of adjectives were included in the analysis the test-retest reliability was .936. When just the 146 adjectives that discriminated at the .001 level were considered the coefficient was .950. It should be noted that the correlation concerned the stability of responses an adjective received, i.e., 150 "male" responses on the first administration, and 161 "male" responses on the second administration. The objective of this phase of the study was to ascertain a subculture's norms pertinent to sex-role. Hence, interest in stability focussed on the consistency of response a particular adjective evoked from a group rather than individual stability. However, in view of the very high test-retest reliability coefficients it seemed reasonable to assume that on an individual basis the subjects were very stable in their ratings.

Sex-Role Identity

In the phase of the research designed to ascertain sex-role identity and its relations to other factors, subjects (Table 3) were asked to react in terms of themselves (above, Fig. 2).

TABLE 3

SCHOOL, SEX AND GRADE LEVEL DISTRIBUTIONS OF SUBJECTS WHO RESPONDED TO THE SEX-ROLE IDENTITY INSTRUMENT

	Freshmen			Seniors		
School	Boys	Girls	Total	Boys	Girls	Total
PI	52	37	90	35	40	75
DL	12	12	24	11	12	23
EC	19	26	45	23	19	42
EL	45	58	103	41	53	94
YT	47	42	89	31	26	57
Total	176	175	351	141	150	291

Note.--Eighty-nine percent of the seniors and eighty-three percent of the freshmen enrolled in the five schools served as subjects.

A subject's score was the sum of the number of items on which he received a "+", minus the sum of the number of items he received a "-" on. A subject received a "+" if he indicated that an adjective found to be appropriate for his sex described him, or indicated that an adjective that was not appropriate for his sex did not describe him. A "-" was received for indicating that an adjective found to be not appropriate for his sex was like him, or indicating that an adjective appropriate for his sex was not like him. A "0" was received for responses in the "Sorry I can't decide..." column. An example should help to clarify the procedure used to score the SRI instrument. Presented in Table 4 are the hypothetical responses of a male subject and a female subject and the scores they received for each response.

TABLE 4

AN EXAMPLE ILLUSTRATING SRI SCORING PROCEDURES

Adjectives	Subject Responses		Score	
	Male Subjects	Female Subjects	Male	Female
adventurous*	like me	not like me	+	+
emotional	like me	like me	-	+
affectionate	can't decide	not like me	0	-
inventive*	not like me	like me	-	-
reckless*	not like me	can't decide	-	0
warm	not like me	can't decide	+	-

*These adjectives were found to be more appropriate for teenage boys; the other adjectives were more appropriate for teenage girls.

There were sixty-five "male" adjectives and fifty-nine "female" adjectives (Appendix G). The "+." "-," "0" scoring was based on Guilford's (1954, p. 274) recommendations. Since some students received a negative SRI score, especially among boys, seventy points were added to all scores to remove the minus signs. A possible explanation of why some students received negative scores is presented in the final chapter.

For the SRI instrument the test-retest reliability coefficient (one week interval) reflected the consistency of subjects rating themselves on the 122 adjectives. In Table 5 the coefficient of stability that was based on the responses of seniors from a Project RED school that did not take part in other aspects of the study is presented. The data were submitted to UWCC's REGAN 1 program.

TABLE 5

COEFFICIENT OF STABILITY FOR THE SEX-ROLE
IDENTITY INSTRUMENT--SENIORS

(There were forty-four senior boys and fifty-six senior girls.)

Subjects	r	z	p
N = 100	.903	14.66	$<.001$

Fisher's Z transformation and a test of significance (Hays, 1963, p. 531) were used to test the null hypothesis that the population correlation was not greater than .85. Since a z score of 2.30 was obtained, it was possible to reject the null hypothesis ($z = 2.18$ for rejection at .015 level, one-tailed test) in favor of the hypothesis of a population correlation of greater than .85.

In previous studies in which the adjective check list method was used, and test-retest correlations determined and reported, the coefficients have not been as high. Birdie (1959) reported a .81 test-retest reliability for the fifty-one adjectives he found to discriminate between appropriate male and female behavior. He started with Gough's list of adjectives and used sixty-six college freshmen as subjects. From work with one hundred men Gough (1952) obtained a test-retest reliability coefficient of .54. In Gough's study the men were asked to check only those adjectives that described them. The interval between testing was six months. Possible and plausible causes for the higher correlations obtained in this study might be the shorter test-retest interval and the younger ages of the subjects. However, a plausible alternative hypothesis might be that the increase was on account of changing the traditional adjective check list procedure.

In the traditional method the subject is asked to place a check in the box next to the adjectives that describe him, his ideal, appropriate behavior, or some other person or concept. Guilford (1954) has suggested that the test-retest reliability of the adjective check list method could be improved by having the subjects respond to all of the adjectives, and by supplying some form of scale for the subjects to indicate the level and intensity of their responses. For this study Guilford's suggestions were followed. The present investigator believes this was the reason for the higher test-retest correlations.

Self-Expectation and Self-Concept of Ability Inventories

The SE and the SCA were used to measure nonintellectual factors that have been shown to be related to academic success. Although both instruments need further development, previous research work has indicated that they are worthy of further study and use in research.

Self-Expectation Inventory

The SE was developed by Binder (1965). The instrument is composed of thirty-nine items that deal with school related behaviors that have been found to be significantly related to academic success at the high school level. For each of the items the subject responds in terms of how he believes he ought to behave; the subjects pick from among the same four alternative choices for each item (Appendix B). In a study of freshman and senior high school students, Binder obtained stability coefficients of .93 and .85 for senior boys and girls, respectively.

In the aforementioned study Binder found that the SE was significantly related to GPA and Henmon-Nelson scores for boys and girls at both grade levels. For all but ninth-grade girls SE scores were found to make a significant contribution to the explanation of GPA variance, i.e., in multiple regression equations (SE, SCA, H-N with GPA) the beta weights for the SE variable were found to be significantly different than zero for all groups except ninth-grade girls. Jones (1966) found that the SE made a significant contribution to the explanation of variance in GPA for twelfth-grade boys, but not for twelfth-grade girls.

Self-Concept of Ability Inventory

The SCA was developed by Brookover, et al., (1962). The instrument was designed to ascertain an individuals' perceptions of their ability to succeed in academic pursuits and how these perceptions were related to actual accomplishments. The instrument is composed of eight multiple choice items (Appendix C). Using Hoyt's analysis of variance approach, coefficients of internal consistency were obtained: .82 for seventh-grade males, and .77 for seventh-grade females. Over a one week interval, Binder (1965) obtained stability coefficients for the instrument of between .91 and .95 for ninth- and twelfth-grade students.

In work with seventh-grade students Brookover, et al., found the SCA to be significantly related to GPA and an IQ index derived from the California Test of Mental Maturity. They also found that the instrument contributed significantly to the explanation of GPA. Both Binder (1965) and Jones (1966) found that the SCA was significantly related to GPA and H-N scores for all of their groups, and that it served to reduce the proportion of unexplained GPA variance for all groups.

Jones compared some of his findings pertinent to SCA and SE with those Binder obtained on twelfth-grade students; subjects for these studies also came from the Project RED population. Some of Jones' findings were: 1) There were no significant differences in beta coefficients. 2) Mean SCA scores were significantly different for the males, but not the females. 3) Mean SE scores were not significantly different. 4) There were no significant differences in SE variances for boys and girls. 5) The SCA variance was significantly different for boys, but not for girls.

Although the SE and SCA probably need further research and development, the evidence to date seems to indicate that both are reliable instruments that add to the explanation of GPA variance.

Treatment of the Data

The primary and secondary research questions (Chapter I, p. 8) concern relations among various variables and the extent to which these variables contribute to the prediction of academic achievement (GPA). Since correlation methods and multiple regression seemed to be the most appropriate statistical techniques to use the data were punched on cards, one per subject, and submitted to the University of Wisconsin's Computing Center for analyses; the Center's REGAN 1 program (Wolfe, et al., 1966) was used to provide the needed analyses.

The secondary research questions involve relations between SRI and mother's work status, SRI and mother's level of education, and SRI and father's level of education. Since the correlations were between a variable that was considered to be continuous (SRI) and others considered to be dichotomous the appropriate correlation method to use was the point biserial correlation (Ferguson, 1959, p. 199). The analyses performed to answer the secondary research questions and those performed to answer the primary questions were carried out separately on four groups of SRI subjects; the groups were composed on the bases of sex and grade level, e.g., ninth-grade females, twelfth-grade males. Why this was done is explained in the next chapter.

Half of the subjects from each group were included in a cross-validation study. These subjects were selected by pulling every other card from the punch card decks; the decks coincided with the aforementioned groups. Then, following the same selection procedure, the four cross-validation groups were divided in half. The regression equation (SCA, SE, H-N, and SRI with GPA) from one-half of a group was used to predict GPA's for the other half of the group. Predicted Fall, 1966 GPA's were correlated with actual Fall, 1966 GPA's.

Summary

This chapter presented a brief account of why this study's population has been deemed to be representative of rural Wisconsin. The sampling plan, instrumentation and data collection and treatment were discussed in more detail.

The results of the study are presented in the following chapter.

CHAPTER IV

RESULTS

The results of this research are presented in this chapter. The chapter is divided into three sections: "Primary Research Questions Results," "Secondary Research Questions Results," and "Ancillary Hypotheses Results." Within each section research questions or hypotheses are stated individually, and the results pertinent to each are presented. The data were analyzed separately for four groups: freshman boys, freshman girls, senior boys, and senior girls. Subjects were separated into four groups for the following reasons:

1. The SE and SRI instruments were scored differently for boys and girls and, therefore, a male's score should not be compared directly with a female's score.
2. Related research by Binder (1965) and Jones (1966) has indicated that such categorization is profitable in terms of results and possible insights. Both Binder and Jones found that the variables varied in their interrelations, and predictive ability regarding GPA with sex and grade level.
3. This researcher believes that because of developmental factors and the typical school environment the nature of the learning experience is to a significant extent different for the four groups.

Although only indirectly related to the research questions or hypotheses, some additional results are included in the belief that they add meaning to the other findings.

Primary Research Questions Results

Since the primary research questions concerned relations among a number of variables and the extent to which they contribute to the prediction of GPA, the data were submitted to the UWCC's REGAN 1 program (Wolfe, et al., 1966). Among other statistics, this program computes means ($\overline{X}$), standard deviations (s.d.), variances (s^2), correlation coefficients ($\underline{r}$), $\underline{z}$ scores ($\underline{z}$), $\underline{t}$-scores ($\underline{t}$), partial correlations (PCC), multiple correlations (R), coefficients of multiple determination (R^2), and standard errors (S.E.). The meaning of these symbols is consistent through-out this chapter. Fisher's $\underline{Z}$-transformation method (Hays, 1963, p. 531) was employed to determine whether the obtained correlations were significantly different than zero, and in some cases whether correlations were significantly different from each other. The primary research questions are presented in the same order as in the first chapter.

1. To what extent is SRI related to SCA?

TABLE 6

CORRELATION COEFFICIENTS OF SCA WITH SRI BY GRADE LEVEL AND SEX, AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CORRELATIONS

Subjects		*r*	*z*	p	d	*z*	p
Boys	Freshmen	-.319	-4.34	<.001	.291	2.65	.01
	Seniors	-.028	- .33	n.s.			
Girls	Freshmen	.033	.44	n.s.	.087	.81	n.s.
	Seniors	-.054	- .66	n.s.			

Inspection of Table 6 reveals that the only significant results (.05 level or better) were among the boys. For freshman boys there was a significant and negative correlation between SRI and SCA. For senior boys the correlation was also negative but not significant. High SRI scores reflect either greater masculinity or femininity as defined by the instrument and dependent on the subject's sex, while a more positive self-concept of ability is indicated by higher SCA scores. For the freshman boys a higher masculinity was related to a lower self-concept of ability. There was a significant difference between the freshman and senior SRI-SCA correlation.

2. To what extent is SRI related to SE?

TABLE 7

CORRELATION COEFFICIENTS OF SRI WITH SE BY GRADE LEVEL AND SEX, AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CORRELATIONS

Subjects		*r*	*z*	p	d	*z*	p
Boys	Freshmen	-.239	-3.19	<.01	.049	.47	n.s.
	Seniors	-.288	-3.49	<.001			
Girls	Freshmen	.239	3.19	<.01	.007	.95	n.s.
	Seniors	.246	3.06	<.01			

For freshmen and seniors SRI and SE were significantly related at at least the .01 level. In the case of the boys the correlations were negative, while for the girls they were positive. For boys then high SRI scores were associated with low SE scores. For girls high SRI scores were associated with high SE scores. The higher the SE score the more the subject expects to behave in ways that have been found to be related to academic achievement at the high school level. There was no significant difference between freshman and senior boys' correlations, and no significant difference between freshman and senior girls' correlations.

3. To what extent is SRI related to GPA?

TABLE 8

CORRELATION COEFFICIENTS OF SRI WITH GPA BY GRADE LEVEL AND SEX, AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CORRELATIONS

Subjects		r	z	p	d	z	p
Boys	Freshmen	-.267	-3.59	<.001	.123	1.09	n.s.
	Seniors	-.144	-1.70	<.10			
Girls	Freshmen	.281	3.79	<.001	.242	2.45	.05
	Seniors	.039	.47	n.s.			

For freshman boys the SRI-GPA correlation was negative and significant at the .001 level. For senior boys it was also negative, but its significance level (.10) only approached the acceptable .05 level. For girls the correlations were positive, but significant for only the freshmen (.001). For boys a greater degree of masculinity was associated with lower grade-point-averages. For freshman girls greater femininity was associated with higher grade-point-averages. There was no significant difference between the correlations for boys, but there was a significant difference for girls (.05).

4. To what extent is SRI related to academic aptitude? (scores on the Henmon-Nelson (H-N) Test of Mental Ability).

TABLE 9

CORRELATION COEFFICIENTS OF H-N WITH SRI BY GRADE LEVEL AND SEX, AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN CORRELATIONS

Subjects		r	z	p	d	z	p
Boys	Freshmen	-.169	-2.24	<.05	.160	1.09	n.s.
	Seniors	-.009	- .10	n.s.			
Girls	Freshmen	.072	.95	n.s.	.221	2.10	.05
	Seniors	-.149	-1.83	<.10			

For both freshman and senior boys the correlation between SRI and H-N was negative, but only in the case of the freshmen was the correlation significant (.05). There was no significant difference between the freshman and senior correlations. For girls the freshman correlation was positive, but not significant. For senior girls the correlation was negative and approaching the required .05 level of significance. Freshman and senior girls' correlations were significantly different.

TABLE 10

SUMMARY OF THE SIGNIFICANCE LEVELS OF SRI CORRELATIONS WITH SCA, SE, GPA, AND H-N

Subjects		SCA	lsd[c]	SE	lsd	GPA	lsd	H-N	lsd
Boys	Freshmen	-[a] <.001[b]	<.01	- <.01		- <.001		- <.05	
	Seniors	-		- <.001		- <.10		+	
Girls	Freshmen	+		+ <.01		+ <.001	<.05		<.05
	Seniors	-		+ <.01		+		- <.10	

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[a] The plus or minus sign indicates whether the correlation was positive or negative.

[b] The level of significance of the correlation--if it was significant.

[c] The level of significance of the difference between the freshmen and senior correlations--if it was significant.

5. To what extent does SRI contribute to the prediction of GPA?

Multiple regression and multiple correlation methods (REGAN 1) were used to answer this question. Since the regression equations and multiple correlations reflect the influence of other variables in addition to SRI the presentation of results is not limited to the SRI variable. The following table lists the multiple correlation coefficients (R), coefficients of multiple determination (R^2), and standard errors of regression (S.E.R.) of SE, SCA, H-N, and SRI with GPA for each of the four groups.

TABLE 11

MULTIPLE CORRELATION COEFFICIENTS, COEFFICIENTS OF DETERMINATION, AND STANDARD ERRORS OF REGRESSION FOR SE, SCA, H-N, AND SRI WITH GPA FOR GRADE LEVEL BY SEX

Subjects		R	R^2	S.E.R.
Boys	Freshmen	.725*	.526	.549
	Seniors	.653*	.426	.535
Girls	Freshmen	.762*	.581	.449
	Seniors	.761*	.579	.430

*Level of significance ($p < .001$)

The multiple correlation coefficient is the maximum measure of the extent to which two or more independent variables, when statistically considered as acting together, are related to the dependent variable. In this research the relation was between the dependent variable (GPA) and the set of independent variables (SCA, SE, H-N, and SRI). The REGAN 1 computes a F ratio that tests whether an observed multiple correlation coefficient is significantly different than zero (Ferguson, p. 301). The coefficient of multiple determination indicates the proportion of variation in the independent variable (GPA) accounted for by a set of independent variables (SE, SCA, H-N, SRI). The standard error of regression reflects the poorness of the prediction or regression equation; the larger it is the less the precision of the regression equation. As indicated in Table 11 all of the multiple correlations were significant. These statistics indicate the collective relations and predictive ability of a group of variables working in cohort. It is also of significant interest to know how each of the variables contributed to the prediction and was related to the dependent variable. Partial correlation statistics and beta (regression) weights provided this information.

Partial correlation reflects the degree of relation between two variables when the common influence of one or more other variables has been removed. The beta or regression weight reflects the contribution an independent variable makes in the prediction of the dependent variable. The larger a variable's beta weight the more it contributes to the prediction of the second variable.

TABLE 12

MULTIPLE REGRESSION ANALYSIS OF SE, SCA, H-N, AND SRI WITH GPA FOR FRESHMAN BOYS

	SE	SCA	H-N	SRI
B	.009	.059	.026	-.002
S.E.	.003	.009	.005	.003
B/S.E.	2.504*	5.608**	5.572**	-.929
PCC	.189*	.395**	.393**	-.071

*Significant at the .05 level
**Significant at the .001 level
B = Beta weight
S.E. = Standard error of regression coefficient
B/S.E. = t-value with 170 degrees of freedom (d.f.)
PCC = Partial correlation coefficient

For freshman boys all, but the SRI, partial correlations were significant and positive; SCA and H-N were most strongly related to GPA. The SRI partial correlation was negative, but not significant. [The significance test that was used involved the *r* to Fisher's *Z* transformation. The appropriate *Z* is divided by the standard error of *Z* which then produces a normally distributed *z* score (Hays, p. 576).] With the exception of the SRI beta weight, all beta weights were significant. The SCA and H-N variables contributed most to the prediction of GPA for this group.

TABLE 13

MULTIPLE REGRESSION ANALYSIS OF SE, SCA, H-N, AND SRI WITH GPA FOR FRESHMAN GIRLS

	SE	SCA	H-N	SRI
B	.001	.059	.027	.009
S.E.	.004	.009	.004	.002
B/S.E.	2.606*	6.047**	6.401**	4.051**
PCC	.196*	.421**	.441**	.297**

*Significant at the .05 level
*Significant at the .01 level
**Significant at the .001 level
B = Beta weight
S.E. = Standard error of the regression coefficient
B/S.E. = *t*-value with 170 d.f.
PCC = Partial correlation coefficient

For freshman girls all beta weights and partial correlations were significantly different than zero. Hence, all of the variables were useful in the prediction of GPA; this was in contrast to the results for freshman boys where SRI was found not to contribute to the prediction of GPA. However, as with freshman boys, the SCA and H-N variables contributed most to reducing the amount of unexplained GPA variance.

TABLE 14

MULTIPLE REGRESSION ANALYSIS OF SE, SCA, H-N, AND SRI WITH GPA FOR SENIOR BOYS

	SE	SCA	H-N	SRI
B	.007	.053	.024	-.004
S.E.	.005	.013	.006	.003
B/S.E.	1.316	3.951**	4.081**	-1.458
PCC	.112	.321**	.330**	-.124

*Significant at the .05 level
**Significant at the .001 level
B = Beta weight
S.E. = Standard error of the regression coefficient
B/S.E. = t-value with 136 d.f.
PCC = Partial correlation coefficient

In contrast to the findings for freshmen, only the partial correlations and beta weights for SCA and H-N were found to be significant for senior boys. For freshmen the beta weights and partial correlations were also significant for the SE variable. As with freshman boys, the SRI beta weight and partial correlation were negative and not significant. Similar to the previously presented findings, the SCA and H-N variables contributed most to the prediction of GPA.

TABLE 15

MULTIPLE REGRESSION ANALYSIS OF SE, SCA, H-N, AND SRI WITH GPA FOR SENIOR GIRLS

	SE	SCA	H-N	SRI
B	.002	.059	.034	.006
S.E.	.005	.011	.004	.002
B/S.E.	.358	5.432**	7.773**	2.256*
PCC	.030	.410**	.541**	.184*

*Significant at the .05 level
**Significant at the .001 level
B = Beta weight
S.E. = Standard error of the regression coefficient
B/S.E. = t-value with 146 d.f.

For senior girls the beta weights and partial correlations were significant for all but the SE variable. As with the three other groups the SCA and H-N variables contributed most to the prediction of GPA. It is interesting to note that at the freshman level the SE variable's beta weights and partial correlations were significant for both boys and girls, but at the senior level they were not significant for either boys or girls. The SRI variable's beta weights and partial correlations were negative and not significant for both senior and freshman boys, but were significant and positive for both groups of girls. In all four cases the SCA and H-N variables contributed most to the prediction of GPA.

TABLE 16

SUMMARY OF THE FINDINGS FOR THE FIFTH PRIMARY RESEARCH QUESTION (BETA WEIGHTS AND PARTIAL CORRELATIONS)

Subjects		SE		SCA		H-N		SRI	
		B[a]	PCC	B	PCC	B	PCC	B	PCC
Boys	Freshmen	+[b] .05[c]	+ .05	+ .001	+ .001	+ .001	+ .001	-	-
	Seniors	+	+	+ .001	+ .001	+ .001	+ .001	-	-
Girls	Freshmen	+ .01	+ .01	+ .001	+ .001	+ .001	+ .001	+ .001	+ .001
	Seniors	+	+	+ .001	+ .001	+ .001	+ .001	+ .05	+ .05

[a] B = beta weight; PCC = partial correlation.

[b] The plus or minus sign indicates whether the beta weight or partial correlation was positive or negative.

[c] The level of significance of the partial correlation or beta weight if it was significant.

Related Results

Although the results presented in the following table are not directly related to the primary research questions they do, to some extent, add meaning to the interpretation of results that is found in the next chapter.

TABLE 17

INTERCORRELATIONS AMONG SE, SCA, GPA, H-N, AND SRI BY GRADE LEVEL AND SEX

		SCA	GPA	H-N	SRI
SE	9B	.336	.382	.282	-.239**
	9G	.363	.421	.250**	.239**
	12B	.536	.391	.204*	-.288
	12G	.338	.270**	.190*	.246**
SCA	9B		.637	.552	-.319
	9G		.624	.525	.033n.s.
	12B		.580	.525	-.028n.s.
	12G		.631	.537	-.054n.s.
GPA	9B			.612	-.267
	9G			.619	.281
	12B			.523	-.144n.s.
	12G			.680	.039n.s.
H-N	9B				-.169*
	9G				.072n.s.
	12B				-.009n.s.
	12G				-.149n.s.

Note.--Unless indicated, the correlation was significant at the .001 level.

*Significant at the .05 level
**Significant at the .01 level
9B = Freshman boys
9G = Freshman girls
12B = Senior boys
12G = Senior girls

Presented in Table 17 are the intercorrelations of SE, SCA, H-N, GPA, and SRI. All of the SE, SCA, H-N, and GPA intercorrelations were significant at at least the .05 level; most were significant at the .001 level. The SRI correlations were presented and referred to on preceding pages.

Presented in Table 18 are the results of the cross-validation study of the efficiency of regression equations in the prediction of GPA. The independent variables were SE, SCA, SRI, and H-N. Half of the subjects from each of the research groups (e.g., freshman boys, senior girls) were randomly selected for inclusion in the cross-validation study. These groups were then randomly divided in half. The regression equation obtained from the data on one-half of the group was used to predict the Fall, 1966 grade-point-averages for the other half. Predicted GPA's were correlated with the achieved GPA's. The correlations between predicted and achieved ranged from .586 for the freshman boys to .806 for the freshman girls. All of the correlations were significant at better than the .001 level of significance.

TABLE 18

CORRELATION COEFFICIENTS OF PREDICTED WITH ACHIEVED GRADE-POINT-AVERAGE BY GRADE LEVEL AND SEX

Subjects		R[a]	*r*	p
Boys	Freshmen	.697	.586	<.001
	Seniors	.811	.664	<.001
Girls	Freshmen	.885	.806	<.001
	Seniors	.851	.624	<.001

[a] Multiple correlation coefficient

Summary of Primary Research Questions Results

Correlation, multiple correlation, partial correlation, and multiple regression were employed to study the relations among SE, SCA, H-N, GPA, and SRI. The individual and collective predictive ability of SE, SCA, H-N, and SRI with GPA were ascertained. Separate analyses were provided for the four categories of subjects: freshman boys, freshman girls, senior boys, senior girls. Results are summarized below.

SRI was found to be significantly related to SCA for only the freshman boys. This correlation was negative, as were the correlations for both senior groups. There was a significant difference between freshman and senior boys' correlations, but none between the female groups.

The SE-SRI correlations were significant for all groups. The correlations were negative for the males, but positive for the females. There was no significant difference between freshman and senior boys' correlations, and none between freshman and senior girls' correlations.

With the exception of senior girls, SRI and GPA were significantly correlated for all groups. The correlations were negative for the males, but positive for the females. There was no significant difference between freshman and senior boys' correlations, but a significant difference between freshman and senior girls' correlations.

There were negative correlations between SRI and H-N for all groups but the freshman girls. The correlations were significant for freshman boys (.05) and were approaching the acceptable .05 significance level for senior girls (.10). There was a significant difference between the correlations of freshman and senior girls.

The multiple correlation coefficient of SE, SCA, H-N, and SRI with GPA for each of the groups was significant at better than .001. For all of the groups the SCA and H-N variables contributed most to the prediction of GPA. At the freshman level the SE variable's beta weights and partial correlations were significant for both boys and girls ($p < .05$), but at the senior level they were not significant for either group. The SRI variable's beta weights and partial correlations were negative and not significant for both senior and freshman boys, but significant and positive for both groups of girls (freshman girls, $p < .001$; senior girls $p < .05$).

Secondary Research Questions Results

The secondary research questions involved the relations between mother's education level (MED) and SRI; father's education level (FED) and SRI, and mother's work status (MWS) and SRI. For the purpose of statistical analysis, the variables MED, FED, and MWS were considered to be dichotomous, while the SRI variable was considered to be continuous. The appropriate correlation method is the point biserial correlation (Ferguson, p. 199). This statistic was computed for the SRI-MED, SRI-FED, and SRI-MWS relations. The results follow each of the individually stated secondary research questions.

1. To what extent is SRI related to MED?

For this analysis the subjects within each of the primary groups (e.g., senior girls) were placed into two groups according to whether their mother had eight years of education or less, or nine years of education or more. No distinction was made between high school and college education because only about seven percent of the subjects had mothers who had gone to college; in many cases those who had gone to college had gone for fewer than four years. Thirty percent of the subjects were included in the elementary education groups. Table 19 contains the results of the analyses for the four primary groups.

TABLE 19

CORRELATION COEFFICIENTS OF SRI WITH MED BY GRADE LEVEL AND SEX

Subjects		r	t	p
Boys	Freshmen	-.004	- .05	n.s.
	Seniors	-.217	-2.60	<.01
Girls	Freshmen	-.005	- .06	n.s.
	Seniors	.136	1.69	<.10

The SRI-MED correlation was negative for both male groups, but significant for only the seniors. The senior girls' correlation was positive and approaching the acceptable .05 significance level. The freshman girls' correlation was negative and not significant.

2. To what extent is SRI related to FED?

For the FED variable the same dichotomizing procedures were followed as for the MED variable. Nine percent of the fathers had some college education. When this group was merged with the high school educated group the resulting group contained fifty-two percent of the subjects.

TABLE 20

CORRELATION COEFFICIENTS OF SRI WITH FED BY GRADE LEVEL AND SEX

Subjects		r	t	p
Boys	Freshmen	.037	.48	n.s.
	Seniors	.056	.67	n.s.
Girls	Freshmen	.028	.04	n.s.
	Seniors	.130	1.58	n.s.

For the FED-SRI relation none of the correlations were significantly different than zero.

3. To what extent is SRI related to MWS?

Subjects were dichotomized into two groups on the basis of whether their mother did or did not work outside of the home. Sixty percent of the subjects comprised the "no work group."

TABLE 21

CORRELATION COEFFICIENTS OF SRI WITH MWS BY GRADE LEVEL AND SEX

Subjects		*r*	*t*	l.s.
Boys	Freshmen	-.077	-1.02	n.s.
	Seniors	.091	1.07	n.s.
Girls	Freshmen	.096	1.26	n.s.
	Seniors	.145	1.83	< .10

As the table clearly indicates, the only SRI-MWS correlation approaching significance was found for the senior girls.

Summary of Secondary Research Questions Results

The secondary research questions concerned relations between SRI and mother's education level (MED), SRI and father's education level (FED), and SRI and mother's work status (MWS). Since the relation was between a continuous variable and a dichotomous one the point biserial correlation was the appropriate correlation method to use.

The SRI-MED correlation was positive and significant for senior boys (.01) and approaching significance for senior girls (.10). There were no significant correlations between SRI and FED. For the

SRI-MWS relation the only correlation approaching significance was for senior girls. The correlation was positive.

TABLE 22

SUMMARY TABLE OF SECONDARY RESEARCH QUESTIONS RESULTS

Subjects		MED	FED	MWS
Boys	Freshmen	-[a]	+	-
	Seniors	- $<.01$[b]	+	+
Girls	Freshmen	-	+	+
	Seniors	+ $<.10$	+	+ $<.10$

[a] The plus or minus sign indicates whether the correlation was positive or negative.

[b] The level of significance of the SRI correlation with MED, FED, or MWS--if correlation was significant.

Ancillary Hypotheses Results

The first two ancillary hypotheses involved determining whether there was a significant difference between two means for independent samples; the t-test for independent samples was used (Hays, p. 317). The last two ancillary hypotheses involved determining whether there were any significant differences among a set of independent means. Analysis of variance was used to determine if there were any significant differences. The t-test was not carried out on all pairs of means because this "must necessarily extract redundant, overlapping, information from the data, and as a result a complicated pattern of dependency must exist among the tests" (Hays, p. 375). The first hypotheses concerned the difference between the mean SE values for ninth- and twelfth-grade girls.

1. Twelfth-grade girls are significantly lower in SE than are ninth-grade girls.

TABLE 23

MEAN, VARIANCE, t STATISTIC, AND LEVEL OF SIGNIFICANCE FOR SUBJECTS BY GRADE LEVEL AND SEX ON SE

Subjects		Mean	Variance	d.f.	t	p
Boys	Freshmen	70.89	163.86	174	-2.86	<.05*
	Seniors	74.64	109.49	140		
Girls	Freshmen	65.34	78.95	174	-4.90	<.001*
	Seniors	69.85	58.94	150		

*Two-tailed test for the boys; one-tailed test for the girls.

As the table shows, the difference between SE means for senior and freshman boys was significant at the .05 level. The mean SE value for senior boys was higher than that of freshman boys. The mean SE value of senior girls was significantly higher than that of freshman girls. This difference was significant at the .001 level and in the opposite direction from the tested hypothesis.

In both of the above stated cases it was necessary to make an adjustment in the t value required for significance. This was necessary because the data did not meet the standard t-test's assumption of equality of variances. To determine this F ratios were obtained for both sets of variances (Ferguson, p. 141). For boys the obtained F ratio was 1.50. This value permits rejection of the null hypothesis of no significant difference in the population variances at the .05 level of significance. For girls the obtained F ratio (1.34) permits rejection of the null hypothesis at the .05 level. The assumption of homogeneous variances was not met in either case; thus the standard t-test could not be used. Instead, Cochran and Cox's (Ferguson, p. 144) t value adjustment method was used. In this method the t value is computed in the standard way, but then an adjustment is made on the t value needed for rejection of the null hypothesis at the desired level of significance.

2. Twelfth-grade girls score significantly higher on SRI than do ninth-grade girls.

TABLE 24

MEAN, VARIANCE, t STATISTIC, AND LEVEL OF SIGNIFICANCE FOR SUBJECTS BY GRADE LEVEL AND SEX ON SRI

Subjects		Mean	Variance	d.f.	t	p
Boys	Freshmen	60.18	300.00	174	.20	n.s.
	Seniors	59.80	281.53	140		
Girls	Freshmen	96.34	246.14	174	5.56	$<.001$
	Seniors	105.75	216.91	150		

Note.--Subtract 70 from each mean to get the actual value. Seventy points were added to all SRI scores in order to make them all positive.

To test the significance of the difference of the means the standard t-test was used. In this case the standard t-test was appropriate because the assumption of homogeneous population variances for boys and girls was met. F ratios of 1.06 and 1.13 for boys and girls respectively were obtained. A F of 1.34 or higher is needed for rejection of the null hypothesis of no difference of population variances at the .05 level. In these cases then, the null hypothesis could not be rejected and it was appropriate to use the standard t method.

As Table 24 reveals, senior girls were higher in SRI ($p < .001$)

than were freshman girls. This finding was in accord with the stated hypothesis. There was no significant difference between mean SRI scores for freshman and senior boys.

3. Senior girls planning to go to college score significantly lower on SRI than do senior girls who do not plan to go to college.

In order to determine whether the preceding statistical hypothesis was correct, a two-way analysis of variance method that allowed for disproportionate cell frequencies and unweighted means was used (Collier, 1965).

TABLE 25

ANALYSIS OF VARIANCE OF SRI FOR THREE GROUPS OF HIGH SCHOOL SENIOR GIRLS ACCORDING TO POST-HIGH SCHOOL PLANS AND GPA

Source	SS	d.f.	MSS	F	p
Plans	60.48	2	30.24	1.75	n.s.[b]
GPA	24.92	2	12.46	.72	n.s.
Interaction	19.00	4	4.75	.27	n.s.
Error	28067.07	131	214.25[a]		
Total	28171.47	139			

[a] Because the analysis is performed on means, the mean sum of squares error used in the $\underline{F}$ ratio is an adjusted figure derived from the error MSS. In this analysis the adjusted mean sum of squares error was 17.30.

[b] $\underline{F}_{(2,131)} \geq$ 3.07 needed for significance at the .05 level.

The analysis revealed that there were no significant main or interaction effects. Therefore, the implied null hypothesis of no significant SRI difference between senior girls planning to go to college and senior girls not planning to go to college could not be rejected. However, it should be noted that when the mean SRI cell values were summed over the three GPA levels (low: 0.00 - 2.59: medium: 2.60 - 3.09, and high: 3.10 - 4.00) the value was least for the college planning girls. The totals were: Work Plans (322.18), Vocational School Plans (325.71), and College Plans (306.39). The trend was clearly in the predicted direction.

4. Senior boys planning to go to college score significantly lower on SRI than do senior boys who do not plan to go to college.

As with the preceding hypothesis, the disproportionate cell frequency, unweighted cell means method of analysis of variance was used.

TABLE 26

ANALYSIS OF VARIANCE OF SRI FOR FOUR GROUPS OF HIGH SCHOOL SENIOR BOYS ACCORDING TO POST-HIGH SCHOOL PLANS AND GPA

Source	SS	d.f.	MSS	F	p
Plans	199.59	3	66.53	1.49	n.s.
GPA	89.91	2	44.95	1.01	n.s.
Interaction	120.85	6	20.14	.45	n.s.
Error	38,921.20	128	304.07[a]		
Total	39,331.55	139			

[a] The adjusted MSS used in the F ratio was 44.55.

There were no significant main or interaction effects. Therefore, the implied null hypothesis of no significant SRI differences between senior boys planning to go to college and senior boys not planning to go to college could not be rejected. However, when the SRI cell means were summed over GPA levels the totals were in the predicted direction for "College" versus "Work" groups. The "Military Service" group had the lowest SRI total. The totals were: Work Plans (190.93), Vocational School Plans (177.99), College Plans (177.88), and Service Plans (167.40). None of these differences were significant.

Summary of Ancillary Hypotheses Results

The results of testing four ancillary hypotheses were presented in this section. For the first two hypotheses the t-test was used; for the final two a disproportionate cell frequency, two-way analysis of variance method was used.

Freshman girls were found to be significantly lower in SE than senior girls. This was in the opposite direction of what the hypothesis predicted. Senior boys were significantly higher on SE than freshman boys.

In accord with the stated statistical hypothesis, senior girls were found to be significantly higher in SRI. There was no significant finding for the boys.

For both senior boys and girls there was no significant SRI differences among groups composed of students planning to go to college, vocational school, work, and military service (boys only). However, although the differences were not significant, the group of girls planning to go to college were lower in SRI than the other female groups. This was in accord with the stated hypothesis. Although the difference was not significant, the college planning boys' group was lower in SRI than the work planning boys' group.

CHAPTER V

SUMMARY, CONCLUSIONS AND DISCUSSION, IMPLICATIONS AND SUGGESTIONS

Summary

The general objective of this investigation was to expand the scope of knowledge about nonintellectual factors that may influence or are, at least, related to academic achievement at the high school level. The primary purpose was to ascertain the relations among sex-role identity and intellectual and nonintellectual factors. Secondarily, the investigator wanted to determine the relations among sex-role identity and certain parental indices, and to test selected ancillary hypotheses.

Subjects for the research were high school seniors and freshmen from nine rural Wisconsin high schools. These schools were randomly selected from the eighteen member schools of the Rennebohm Educational Development Project. Project RED was designed to help enhance the educational development of rural Wisconsin youth. Four of the nine sample schools were involved in the phase of study in which sex-role norms were ascertained; the five other schools comprised the sample for the sex-role identity and its relations research.

The design of the study was largely influenced by the nature of the research questions and hypotheses. These questions and hypotheses were formulated on the bases of an extensive review of the literature pertinent to sex-role identity and the previous research done under the auspices of Project RED. The study's research questions and hypotheses are presented below. The primary questions were stated as follows:

1. To what extent is sex-role identity (SRI) related to self-concept of ability (SCA)?
2. To what extent is SRI related to self-expectations (SE)?
3. To what extent is SRI related to grade-point-average (GPA)?
4. To what extent is SRI related to academic ability? (The Hemmon-Nelson (H-N) Test of Mental Ability)
5. To what extent does SRI contribute to the prediction of GPA?

The secondary questions were:

1. To what extent is SRI related to mother's education level (MED)?
2. To what extent is SRI related to father's education level (FED)?
3. To what extent is SRI related to mother's work status (MWS)?

The ancillary hypotheses were:

1. Twelfth-grade girls are significantly lower in SE than are ninth-grade girls.
2. Twelfth-grade girls score significantly higher on SRI than ninth-grade girls.
3. Senior girls planning to go to college score significantly

lower on SRI than do girls who do not plan to go to college.

4. Senior boys planning to go to college score significantly lower on SRI than do senior boys who do not plan to go to college.

To answer the primary research questions the data were submitted to the University of Wisconsin Computing Center's REGAN 1 program. This program computes means, variances, correlations, multiple correlations, and regression equation statistics. The point-biserial correlation method was used to determine the relations between a continuous variable (SRI) and the dichotomous variables involved in the secondary research questions (MED, FED, MWS). To test the ancillary hypotheses the t-test and analysis of variance were used.

Limitations

In the next section the researcher's conclusions are presented and discussed. So that the reader of the section is aware of the tenuousness of some of the findings, and hence the conclusions reached, the limitations of the study are again presented.

The instruments used in this research to measure nonintellectual factors have been found to have adequate test-retest reliabilities and varying amounts of predictive validity. However, all seem to need further study and development; this appears to be especially true for the instruments used to measure sex-role norms and sex-role identity. Of particular import would be the determination of how the check list adjectives were interpreted by the subjects, and the differential configurations of responses that resulted in statistically similar

SRI scores. It is the researcher's belief that much could be learned from further study of the instruments and that better instruments would result. Meanwhile, it is still held that the instruments provided reliable and valid information about sex-role norms and sex-role identity.

Testing was conducted in large group sessions, at times with groups of over a hundred students. Some students conferred with each other, but for most students and on most of the items no contaminating discussions were held. Conditions could have been more favorable, but they were not regarded as significant deterrents to the collection of meaningful data.

The study was a field study and was thus endowed with the strengths and weaknesses inherent in such studies (above, p. 11). Because the study was not an experimental one, i.e., subjects and treatments were not randomly assigned, and variables were not manipulated; cause and effect relations were not determined and, in most cases, should probably not be inferred.

Finally, it would be best to restrict projecting the findings and implications of this study to the population area, and then, with far less certainty, to similar rural areas throughout the state of Wisconsin and in adjoining states.

Conclusions and Discussion

Based on the analysis of the data, the researcher's personal experiences, and discussions with people of varied backgrounds certain conclusions pertinent to the research questions and hypotheses were reached. Prior to their presentation and discussion the sex-role identity instrument is discussed. This brief exposition was included because the investigator believed that the reader could more accurately and critically react to the discussion of the results if he were better informed about the SRI instrument and how a sample of subjects reacted to it.

The SRI instrument was composed of 124 adjectives. Sixty-five of them were found to represent more appropriate behavior for teenage boys, while the remainder (59) were found to represent more appropriate behavior for the teenage girl. It is this researcher's belief that the division was along traditional sex-role lines, i.e., the rugged, unemotional, cold and independent male; the warm, submissive, understanding and weak female (complete adjective listing, Appendix G). The stereotype was traditional. In no sense did it reflect emergent, i.e., a blending of traditional male and female behaviors, sex-roles which indicate a loosening and greater permeability of barriers that have separated traditionally held appropriate male and female behavior. However, most interestingly, when subjects were asked to rate themselves their responses seemed to indicate emergent sex-role identities rather than traditional ones, and this trend seemed to be most marked among the males.

There were 124 adjectives; the highest score an individual could get was +124 (above, p.61). But the mean scores were: -10 for freshman boys, -10 for senior boys, 26 for freshman girls, and

35 for senior girls. These low scores were the result of subjects crossing sex lines to accept adjectives, while at the same time rejecting like-sexed adjectives (Appendix H). Thus, it seems that while the stereotype was traditional, members of both sexes viewed themselves in emergent rather than traditional ways. If the subjects' choices of adjectives accurately reflected behavior patterns, then it appears that even in this rural area the direction was toward behavior patterns that combine aspects of roles once considered to be exclusively in the domain of one of the sexes to the exclusion of the other.

The sex-role identities of both sexes seem to have been in the emergent direction, with the male sex-role identities more emergent than the female's. This might have been because the feminine traditional role was not as incongruent as the male's with what they encounter and will encounter in life. For most of the female subjects it is likely that their primary future orientation was marriage and family. A likelihood is that it was even true for those planning to go to college, and while in college it is likely that a large percentage intended to major in such traditional areas as teaching and nursing. The school, generally considered to be a female dominated institution where female values and traits are rewarded, probably also served to help perpetuate a sex-role identity that was more in accord with the traditional than the male's.

Again, in contrast to the female's environment, the environment of the world of work has changed more for the male. Confronted with the need to succeed in the work world so that he might raise a family--in better style than his father did--and receive the rewards available to those who do succeed and achieve the boy must pick an occupation where his chances for success are best. As the years pass what he encounters with increasing frequency is that the proportion of "muscle-male" jobs decrease, while those calling for "brain power" increase. Even if he wants to be a farmer, he will find that his fortune will increasingly become more dependent on intelligence and how he can cope with people than with the size of his biceps or quadraceps. The school also probably played a part here, for not only did school patterns of reward probably favor adoption of more feminine-like behaviors, but it is likely that they also taught about modern male attributes that engender success in the world of work. As a result the male develops an emergent sex-role identity that is more in accord with the realities and necessities for modern life and success.

The forces that could have moved subjects of both sexes in the emergent direction were the mass media of communication. Although the subjects and their parents might not have been in daily contact with people who modeled the emergent sex-roles, exposure was probably quite prevalent via television, radio, movies, books and magazines: the career woman, the suave, gentlemanly athlete or businessman.

The schools, the work world, and mass media all probably served to influence the subjects' sex-role identities. They probably also influenced their parents who in turn influenced the subjects. The inferred direction of change was toward a sex-role that is a blending of traditional male and female behaviors. This movement away from the traditional orientation seems to have been more marked for the male.

Research Questions and Hypotheses

The correlations between SRI and SCA, SE, H-N, and GPA were negative for boys. For freshman boys the correlations were all significant at better than the .05 level; for senior boys only the SRI-SE (.001) correlation was significant at the .05 level or better. The SRI-GPA approached the .05 level ($p < .10$), but was not significant. For freshman girls the significant correlations were positive: SRI-SE (.01), SRI-GPA (.001). The SRI-SE (.01) was significant and positive for senior girls. There were significant differences (.05) between the SRI-GPA and SRI-H-N correlations for the female groups. The most interesting aspect of the findings is that the correlations for the male groups were all negative, while for the female groups seventy-five percent of them were positive. For male subjects higher SRI scores were associated with lower scores on three indices that have been found to be significantly related to GPA and with GPA itself.

It appears that for boys there was a diminution in the acceptance of certain attitudes and behaviors which are related to GPA and a lowering of GPA itself as the sex-role identity moved toward a more traditional orientation. For girls the exact opposite was generally prevalant. It is quite probable that the male subjects perceived school and school behaviors and attitudes that would be rewarded by school personnel as feminine. This possibility does not seem to be remote when one considers the preponderance of female teachers. For the most part, teachers espouse and reward traditional feminine values, attitudes, and behaviors.

Girls find the rewards more readily garnered because at home they are generally taught what it means to be feminine in the traditional sense, and thus prior and concurrent training is generally in close accord with the school environment. Boys are taught to be boys. This usually means, especially in rural areas, to be brave, independent, reckless, daring, physical, unemotional. In schools, then, boys see girls rewarded for feminine behavior, but if they try to assert the masculinity they have been rewarded for at other times they are punished, and in comparison to girls they do not succeed as well in school. Girls, then, usually find school to be a more hospitable and rewarding place than do boys. It is a place where you can receive rewards by being what you are--feminine. To do as the school says, to conform, to get good grades is in close accord with the traditional feminine role.

Because school is perceived to be more feminine, to fall more within the female than male domain, it may be that boys develop some hostile feelings toward it. To behave in more masculine ways means to be punished, not to succeed, not to do as well as girls. If a boy wants the rewards and success more readily available to the girl he must adopt certain modes of behavior and thinking which are the antithesis of traditional masculinity. If he can successfully do this then his sex-role identity will move away from the traditional toward the emergent, and seemingly help engender academic success. If he cannot, if he is unsure of his masculinity and must hold on to vestiges that assert it, then it is likely that he will move even more in the masculine direction--deriding the rewards he received too infrequently as feminine. The implications of the above seem to be ultimately deleterious for both boys and girls.

Scholastic success for many boys is probably impeded by the fact that behaviors and attitudes conducive to such success are perceived as feminine. To accept these means that the male, in many cases, must either learn that behaviors are situationally bound or reorient his identity to a more emergent sex-role. In most cases this is probably not easy and remnants of his ideas of masculinity-femininity probably still persist and limit his scholastic success. These tasks are probably most difficult for boys who are unsure of their masculinity and any slight move in a direction perceived as feminine is overly threatening and rebelled against. The general trend of this study's findings suggest that freshman boys find the tasks more difficult, and of course have had less time to learn them. Although there was no significant difference between freshman and senior mean SRI scores, more of the freshman SRI correlations were significant and, of course, negative. In the specific case of the SRI-GPA correlation the level of significance for freshmen was better than .001, while for seniors the correlation failed to reach the .05

level of significance ($p < .10$). The correlations were significantly different at the .05 level.

It is offered that freshmen are less sure of their masculinity than seniors and must therefore assert their masculinity to themselves and others, and the ways in which they do so are generally antagonistic to school success. For the past few years of the typical freshman boy's life he has found himself in the unenviable position of being smaller than many of the girls his own age. While still in elementary or junior high school the negative affect of this was reduced by the fact that although there were many girls his own age who were taller and heavier than he was he was still taller, bigger, and stronger than most of the pupils in the lower grades. But as a high school freshman he finds that many of the girls are still taller, while the boys in the other grades are now taller, heavier, stronger, and more mature--definitely more masculine. It seems possible that many freshman boys who are in this position and are unsure of their masculinity try to assert their masculinity by rebelling against behaviors they have learned to associate with the feminine school and the feminine sex. But as they age, grow taller than their female counterparts, have more heterosexual experiences and move up the grade-level hierarchy their confidence in their masculinity probably increases. Hence, they are freer to behave in ways that are conducive to scholastic success. For many boys, though, it is probable that conflicts which are partly caused by a feminine oriented institution are never overcome, or if they are, a past history of diminished performance is difficult to overcome.

Relative to the male, the female seems to be in the more favorable position. The feminine sex-role seems to be more acceptant of scholastic achievement, and attitudes and behaviors that are related to scholastic success under the educational methods that are dominant today. However, according to many scholars the male role is more acceptant of achievement. This may be, but the need to achieve can be satisfied in diverse ways and all might interfere with scholastic success. Instead of devoting most of one's time and energies to academics a boy might strive hardest for success and achievement in such masculine areas as sports, shop work, only certain academic subjects (e.g., mathematics), or out of school activities. Focussing on these areas might satisfy achievement needs and reaffirm and assert a person's masculinity, but it would also probably detract from achievement in most other scholastic areas. The aforementioned is not hard to understand if we accept the assumption that schools are basically feminine oriented. However, just as the school's femininity seems to impede the learning of boys, it also, in a more subtle way, hinders the development of girls.

Traditional masculine and feminine sex-roles represent a fairly strict dichotomization of bipolar behaviors. It is doubtful that adherence to this rigid separation of behavior patterns was ever of optimal value to individuals or their society. In the present decade and in the decades to come it seems likely that for personal optimal development a person will require a sex-role identity that is a blending of attributes that were once considered to be appropriate for only one or the other sex. For a school system to perpetuate the division by unequally reinforcing feminine-linked behaviors is, as we have seen, detrimental to the development of males, and it also would seem to be detrimental to female development. In fact, the effect might even be more serious for females. Males are exposed to females and the feminine role. They are forced and expected to conform to and adopt many feminine behavior patterns. The methodology may be crude, but it seemingly does lead to more emergent sex-roles. Females are exposed to the more available feminine model at home, and in school they are again predominantly exposed to feminine behaviors, attitudes, and values and are rewarded for conforming to them. The traditional feminine identity is reinforced.

Schools are not generally noted for rewarding and providing models for such traditionally masculine behaviors as independence, adventurousness, and inventiveness. When boys do display these they are often punished, forced to give them up, forced to conform. Rewarded for feminine behaviors and observing more masculine type behaviors being punished it seems more likely that girls would strive to further develop their femininity than to work in directions that would result in a more emergent role. It also seems likely that the longer girls are in school the more they will develop a traditionally oriented feminine sex-role. As a result, they probably increasingly come to view their future in terms of housewife-mother to the almost total exclusion of developing other talents and thinking in terms of career patterns that in some form combine a career with motherly obligations. Thus, the high school girl who views her future in terms of marriage and motherhood might begin to devote less time to "unimportant" scholastics and more time to the task of developing her feminine charms so that she might lure and catch a suitable husband--provider. Suggestive, although partial and incomplete, evidence for the above is this study's findings that senior girls had a more feminine sex-role identity than freshmen; and that while the SRI scores for both freshman and senior girls were positively correlated with GPA the correlation was not significant for senior girls, but it was significantly different from the freshman correlation. Higher SRI scores among freshman girls may have reflected a more emergent sex-role that was conducive to academic success, but among seniors the higher SRI scores reflected a move toward greater acceptance of the traditional feminine sex-role and this might not have been conducive to scholastic success.

Regression Equations

The multiple correlation coefficient of SE, SCA, H-N, and SRI with GPA was significant for each group. The coefficients of multiple determination ranged from .426 for freshman boys to .581 for freshman girls. Previous research has indicated that academic aptitude alone explains only about thirty-five percent of the grade-point-average variance. It is then evident that for all of the groups the nonintellectual factors served to help reduce some of the unexplained variance. For all four groups SCA and H-N contributed the most to the reduction of unexplained GPA variance. SE did not contribute significantly for senior boys and girls. For boys the SRI contribution was not significant, but it was negative. SRI contributed significantly and positively for both groups of girls.

The previous findings of Jones (1966) and Binder (1965) make it difficult to say why SE did not make a significant contribution. Jones found that SE contributed significantly for senior boys, but not for senior girls. Binder found that it contributed significantly for all but the ninth-grade girls. With such conflicting findings it seems realistic to conclude that the SE instrument is in need of further study and development.

The regression equations seem to indicate that SRI, as measured in this study, is a more important GPA predictor for girls than for boys. It is difficult to explain this finding. It could be that the interrelations of SRI with H-N, SCA, and SE negate the predictive efficiency for boys, but not for girls. Intercorrelations between the self-expectations, self-concept of ability, and sex-role identity measures show more overlap in the explanation of GPA variance for boys than for girls. This might be because the behaviors and attitudes referred to by the SE and SCA inventories are perceived as feminine by both sexes, but are more threatening to males. A male's sex-role identity would probably influence his SCA and SE responses more than a woman's sex-role identity. A male has to respond to feminine perceived items and thus the issue of his masculinity probably becomes involved, but the woman's femininity is not as involved because the items are feminine and the threat is not as great as it would be if the items were perceived as masculine. It thus seems that the SE, SCA, and SRI measures are to a greater extent independent of each other for females, and also overlap less than boys' in the explanation of GPA variance. The greater overlapping for boys tends to account for the fact that sex-role identity was a significant predicting variable for girls, but not for boys.

SRI-MED, SRI-FED, SRI-MWS

The only significant correlation for the boys was the SRI-MED correlation. The correlation was negative and significant at the .01 level for senior boys. The correlation for freshman boys was negative, but not significant. A more educated mother might be more aware of the types of attributes that are needed for scholastic success and success in an increasing part of the world of work. Cognizant of these needs she herself might strive to inculcate them in her son, or at least reinforce school learnings. The resultant would seemingly be a teenager with an emergent sex-role identity. The lack of a significant correlation for freshman boys might have been because the freshman, less sure of their masculinity and not as concerned about work, were not as free to accept feminine type behaviors as the seniors.

No other correlations for the boys were significant. The level of the father's education probably did not have an effect on sex-role related matters because the masculinity-femininity attitudes of the high school educated group were probably not significantly different than those of the elementary group. This was probably true for the mothers also, but if there was a slight difference it would be more important for the mothers because it is likely that they were in greater contact with their sons than the fathers.

For boys and girls there were no significant MWS-SRI correlations. It was believed that working mothers would provide a different model of femininity for both boys and girls and this would influence their sex-role identity. That it seemingly did not could probably best be accounted for by the nature of the jobs the mothers probably held and the importance of the homemaker-mother role in rural society. A working mother probably held such traditionally feminine positions as waitress, saleslady, cleaning woman, teacher, nurse. Within the family circle the job was probably perceived as economically essential for family survival and not as a career position for the mother; the mother's, women's, most important function is being a good housewife and mother. Outside work is secondary, but essential. This type of orientation is in contrast to cases where the mother works not out of economic necessity, but because she wants to pursue a career for her own social, emotional, and intellectual reasons; mother-housewife tasks are allocated to people who are paid out of the career-mother's salary. It thus is offered that because of the jobs they probably held, the probable reasons for holding them, and the importance of the homemaker-mother role the working mothers in this study presented an almost identical model of femininity, homemaker-mother, as the model presented by non-working mothers.

For girls none of the correlations reached significance at the .05 level. For senior girls the SRI-MED and SRI-MWS correlations were positive and approached the .05 level ($p < .10$). Higher SRI scores might have been associated with more educated mothers--usually a high school education--because they were more feminine than the less educated mothers. In this study senior girls were found to be more feminine than freshman girls. It could be that these high school educated mothers became more feminine as they went through high school and thus presented to their daughters a more feminine model.

ANOVA Tested Hypotheses

There was no significant differences in SRI among groups of boys planning to go to college, to work, to vocational school, or enter military service. The mean SRI score of the college planning group was in the predicted direction of being lower than that of the work planning group. For girls there were also no significant differences in SRI scores, but college planning girls were lower than the vocationally planning group and the work planning group. The hypotheses that boys and girls planning to go to college would be lower in SRI were formed on the belief that a college education is inconsistent with the traditional sex-role for both groups. The non-significant findings could be accounted for by assuming that boys perceived college as no more than a place to learn a vocation and pictured themselves training for traditional masculine jobs. Girls could have viewed college as a place to get training to become a teacher or nurse. Both are traditionally feminine and involve feminine nurturant qualities and supposedly help prepare a woman for marriage and a family.

Suggestions for Education

There seems to be little doubt that in most areas of the United States the sex-roles are changing and the barriers delineating appropriate male and female behaviors are shrinking and becoming more permeable. The responses of these subjects indicated that their sex-role identities were more in the emergent direction than the traditional, but that they viewed appropriate male and female behavior along traditional lines. These lingering traditional stereotypes may cause conflicts among teenagers over appropriate ways to behave, and may restrict them from freely adopting emergent sex-roles that appear to be more conducive to academic success. The school can be a place in which there are efforts to change the traditional stereotypes and help people resolve sex-role conflicts.

As a common meeting place for adolescents and as an institution that undoubtedly has a significant influence on the attitudes and lives of young people, schools can work to promote favorable sex-role identities. This researcher suggests that for both boys and girls a sex-role that is a blending of both feminine and masculine traits is best for academic success. An optimal emergent role would combine masculine traits (e.g., adventurousness, inventiveness, independence), that seemingly are conducive to garnering new ideas and techniques with feminine traits (e.g., considerateness, warmness, carefulness, sensitivity) that should promote better interpersonal relations with teachers and other people. To promulgate the acceptance of emergent sex-roles and in order to remold stereotypes that are artifacts of pioneer days, schools must be aware of the significance of the area and actively work in it. Awareness of the problem will probably be the result of the initiative of an interested person or group, but once school personnel are stimulated it is suggested that they implement some of the following:

1. Straightforward discussions on the changing roles of men and women, and the reasons for these changes.
2. Student-faculty discussions on the problems of being a male or female, and what it means to be a male or female.
3. Education on the physiological aspects of masculinity and femininity, and knowledge and acceptance of individual growth rates.
4. The hiring of male teachers who model masculinity in its traditional aspects as far as strength, courage, appearance, but who are also well mannered, understanding, sensitive, warm. Succinctly, what is needed are men who model what could be considered the best of both traditional roles.
5. Group discussions and lectures on the woman's role and the different career patterns for women.

6. Individual counseling that allows the counselee the opportunity to explore his sexuality and what it means to him.
7. Opportunities for students to try out behaviors that have been generally restricted to the other sex. Opportunities to learn that they will be rewarded for these activities and not be thought any the less appealing to the other sex, but, in fact, more appealing because of the increased broadness of their behavior patterns.

The above suggestions are offered in the hope that, if implemented, they will result in more emergent and functional sex-roles--sex-roles that are conducive to academic success and roles in which people feel comfortable. This research has provided some support of the contention that an emergent sex-role is conducive to academic success. It was the researcher's belief that schools are primarily feminine institutions that promulgate the traditional feminine role. In such schools girls become more traditionally feminine, while boys, although they probably do develop a more emergent identity because of the feminine exposure, reduce their efforts in many feminine-perceived scholastic areas and spend most of their energies on nonacademic or non-school activities that are seen as masculine.

If the aforementioned analysis is correct then schools are doing individuals and societies a disservice by not freeing people to develop in accord with their inherent abilities and their personal predilections. Restricting people to certain behavior patterns because of their sex is wasteful of talent. It is an education not in congruence with the exigencies of modern life, but in accord with artificial conventionalities that are romantic and anachronistic artifacts. Individuals should not be restricted from certain behaviors or forced into others on the basis of sex. They should be educated so that they are able to make their own decisions on the bases of self-knowledge and understanding, and knowledge of the opportunities the present human sphere of existence offers.

In addition to sex-role norms and sex-role identity other nonintellectual factors were investigated. This study's findings and those of an increasing number of related studies tend to indicate that nonintellectual factors are related to academic success. If schools are to fulfill their primary task of educating people for competence in the modern world then school personnel must consider more than "brain power" in deciding why some succeed in school while others do not. In building and operating a school, in developing and implementing a curriculum physical and intellectual considerations are important, but they should not be the sole concerns. Schools are for the purposes of serving and developing individuals and societies. To these ends they must consider what their pupils think and feel, and how the educational experience affects and is perceived by them.

Objection might be taken with what has been said in this section because of its intuitive, rather than imperical, character. Much research needs to be undertaken in these areas, and that research often comes only after a person has become emotionally involved and wants to test the validity of his ideas or learn more about the situation.

Recommendations for Further Research

The value of exploratory research is that it offers evidence that the basic research premises are or are not somewhat valid and worthy of continued research. Also, it often provides insights that result in related and more valuable research studies. This researcher believes that the results of this study have supported his contention that sex-role norms and sex-role identity were important factors in academic achievement. Further research could lead to more conclusive and important findings than were unveiled by this research. If implemented, the following research recommendations should result in increased understanding of the development of sex-role identity and how it is related to academic achievement.

1. For validation and reliability purposes this study should be replicated. Also, to ascertain whether sex-role identity and its relations vary according to socio-economic conditions and other factors the study should be replicated in various sections of the country.
2. In addition to gathering sex-role data on students,

③

sex-role related data should be gathered on school personnel and parents. These data might provide additional clues as to how sex-role identity develops and how it influences scholastic achievement. It would also offer clues as to whether the appropriate sex-roles are viewed differently by different groups. If so, such knowledge might help to facilitate communication between the groups.

3. Longitudinal studies should be undertaken to trace the development of sex-role identity.
4. To make the sex-role identity measure more meaningful the stimulus value of each adjective should be ascertained. Subjects could be asked to fill out the SRI instrument and then asked to indicate why they responded to each adjective as they did. Their remarks could be tape recorded and studied, either on an individual basis or as part of various subgroupings.
5. The SRI instrument yields a gross score that seems to provide valuable information, but it is likely that statistically identical SRI scores were arrived at by differential responses to the adjectives. More precise sex-role identity information would probably be obtained if the distinctive patterns of responses could be determined and linked with particular groups of subjects.

6. If certain sex-role identities impede academic success, then methods of altering sex-role identity should be studied. Experimental studies involving group counseling, individual counseling, modeling, and group pressure should be undertaken. These studies should yield information about changing sex-role identity and also, perhaps, about how sex-role identity develops.

APPENDIX A

EDUCATIONAL DATA FORM

Section I

NAME ______________________________________ DATE ______________
Last First Middle

SCHOOL ____________________ GRADE _____ SEX: M _______ F _______

HOME ADDRESS ____________________ CITY __________ STATE _______ ZIP _____
Street, P.O.Box or R.F.D.#

PARENT'S NAME & ADDRESS IF DIFFERENT FROM YOURS:

NAME ____

ADDRESS ____

____

____

Please answer ALL questions in Section I below. Read all instructions carefully before answering. If you do not know the answer and cannot make an 'educated guess,' write in: "I DO NOT KNOW." WRITE OR PRINT CLEARLY!

____

____

1. Are you: (check one)

_________ the oldest child in your family?

_________ an only child?

_________ the youngest child in your family?

_________ between the oldest and the youngest?

2. How many people, including children and adults, live at your home now? (Include yourself and any family members living temporarily away from home.)

____

a. How many of these people depend on your parents for financial support? ____________________

b. How many brothers do you have? ____________________

c. How many sisters do you have? ____________________

3. When were you born? ______________________________
Month Day Year

4. In or near what town, city or county were you born?____________

5. Where was your father born?______________________________

6. Where was your mother born?______________________________

7. How many years of formal schooling did your father have? (Circle one)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 more

8. Has your father had any education or training in addition to regular elementary and secondary school? Yes________No________

a. If yes, describe the kind of training or education.__________

____

b. At what institution or in what organization did he obtain this education or training?____________________________

____

9. How many years of formal schooling did your mother have? (Circle one)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 more

10. Has your mother had any education or training in addition to regular elementary and secondary school? Yes__________No__________

a. If yes, describe the kind of training or education__________

____

b. At what institution or in what organization did she obtain this education or training?____________________________

NOTE: (If father is deceased or retired, answer the following questions in terms of when he was last working. But, if you now have a stepfather or guardian, answer in terms of his occupation.)

11. a. (Check one) Is the male head of your family:

deceased father __________ working father __________

retired father __________ stepfather or guardian _____

b. What is his occupation?____________________________

____

12. Describe what he actually does on the job. (If farmer, tell what type; for example, dairy...) ______________________________

13. Name the place, business, or organization where he works. If he is a farmer, indicate whether he is: the owner, renter, tenant, manager, or farm laborer.

____

____

14. How many people work there? (If farming, how many people are employed for pay?)

____

15. Does your mother have a job outside the home? (Check one)

Yes, full-time ____________ Yes, part-time ________ No ________

16. Which parents are living? ______________________________

17. Are your parents divorced or separated? ______________________________

18. Do you live with both parents? ____________ If not, with whom ___

____

19. Are your parents tenants or renters ________, buyers ______, or owners ________ of their home? (Owners means that they own the home with no mortgage on it.)

20. Describe the job(s) you have held either during the past Summer

and/or this school year. ______________________________

____

21. Was working your idea or someone else's? ______________________________

22. If not your idea, whose? ______________________________

23. Whether or not you are now working, please tell what you would want to accomplish by working part-time or summers. ____________

____

____

24. Considering your high school experiences to date, suggest ways in

which your experiences might have been more valuable to you:

____

____

____

25. Is there a definite crowd that you "run around" with at school?

____

26. What things does a person have to do in order to get into and stay in your crowd? ______________________________

____

27. Do you date? ______________________________

28. Go steady? ______________________________

29. How would your best friends describe you? ______________________________

____

30. Most of the time, which is the most important to you: being by yourself, or being with others? (Choose one) ______________

31. Indicate below the person or persons who have influenced you the most. Indicate their relationship to you (Parent, friend, teacher, famous person, etc.) and their most outstanding qualities. Be sure to list actual names of persons in the first column.

Name of Person	Relationship to you	Outstanding Qualities
A.		
B.		
C.		
D.		

32. Do you see yourself as a person who likes to do new and different things or do you prefer familiar and stable situations? (Choose one) ______________________________

33. How do your parents react when they learn that you want to do something new and different, something you have never done before?

____

34. What would you do if your parents did not react favorably to your idea?______________________________

35. When your parents learn that you have done something wrong, what do they usually do about it?________________________

36. Explain how you usually feel about the action that your parents usually take when you do something wrong.__________________

____

37. If you could be remembered here at school for one thing, what would you want it to be?______________________________

38. Describe below each school club or activity, including sports, music, etc., in which you have been involved regularly this school year, and your participation in it, including offices held, committees, etc. (If the organization has a name, give it and tell what it does.)

Nature of Club or Activity	Committees and Offices Held (If none, write none)

39. To what clubs or groups do you belong outside of school? (List offices held, committees, etc.) If none, write none.

Nature of Club or Activity	Name of Non-School Organization or Club

40. Have you a car of your own?__________ Motorcycle or motorbike?______

41. Describe any unusual events, (Good or Bad) accidents, honors, or other special circumstances that have had a lot of significance for, or effect on you..... directly or indirectly. (Please indicate whether or not you consider the experience mentioned as good or bad.) If none, write none.

Good ____ Bad ____: ____
Good ____ Bad ____: ____
Good ____ Bad ____: ____
Good ____ Bad ____: ____

42. So far, high school has been: (Check one)

__________ Awful __________ Interesting

__________ Pretty dull __________ Full of fun and excitement

43. Indicate the magazines you read regularly or fairly regularly. (Almost every issue.) __________

44. Name 1 - 3 books you have read just because you wanted to during this past school year. __________

45. If you had three wishes, what would they be?

a. __________

b. __________

c. __________

46. Answer the question, "Who Am I?" Give five different answers to this question. Answer as if you were giving answers to yourself, not to someone else. Give the answers in the order they occur to you. Don't worry about the logic or importance.

A. __________

B. __________

C. __________

D. __________

E. __________

47. Rank the following in the order, 1st, 2nd, 3rd, of your own preference for working with:

__________ ideas; __________ people; __________ tools or things.

Section II

NOTE: Section II of this questionnaire is divided into four parts: A, B, C, and D. ALL STUDENTS SHOULD ANSWER PARTS A and D. Follow specific directions as indicated for parts B and C.

PART A - FUTURE PLANS AND GOALS: (All Students Answer)

48. Describe what you think you will be doing the first year after you leave high school.________________________________

49. How certain are you about your answer to question 48?__________

50. Regarding your answer to Question 48, rate yourself as to chances of succeeding:
excellent______: above-average______: average_______: fair____

PART B - IF you are planning to go to any educational or training institution, (For example, College, business school, nurse's training, vocational school, etc.,) answer the following questions: if not, skip to PART C.

51. With whom have you discussed your plans for more eudcation?
____

52. Have you read any materials concerning the plans?______________

53. What other investigating have you done?______________________

54. What institutions have you considered?_______________________
____

55. What institution have you chosen?___________________________

56. How do you plan to finance this education?____________________
____

57. How long will it take to complete your training or education_____
____

58. What occupation are you considering entering upon completing your training?______________________________

59. a. What rewards or benefits do you hope to gain from this occupation?______________________________
b. Rate your chances of succeeding in # 58.
excellent_______: above-average_____: average______: fair___

60. How long ago did you decide on this plan?_____________________

PART C - **IF** you are planning to go to work or into the Armed Services, immediately upon completion of high school, answer the following questions:

61. With whom have you discussed your plan?________________

62. Have you read any materials concerning your plans?________
Describe them:________________

63. What other investigating have you done?________________

64. What occupation do you plan to enter upon leaving high school?
____

65. What rewards or benefits do you hope to gain from this occupation?
____

66. Have you considered any alternative occupations?________
Describe them:________________

PART D - **GENERAL INFORMATION (All Students Answer.)**

68. How do each of your parents feel about your educational and vocational plans and goals?________________

69. In what ways, if any, will your parents be able to help you, financially and otherwise, to achieve your educational or vocational goal? Be specific:
____

70. Describe any obstacles that you feel may interfere with your future plans.________________

71. Describe your life as you think it will probably be 10 years from now. (For example: job, your family, home, environment, clubs, etc.)
a. Job:________________
b. Home & Family:________________
c. Community:________________
d. Other aspects of life:________________

72. Rate your general physical health as one of the following:

Excellent________; O. K. ________; Poor________

73. a. Do you have any physical handicap, for example, eyesight,

hearing, speech, crippled, etc., that you think will interfere with your present educational and/or vocational plans?

Yes__________________ No__________________

b. If yes, describe each handicap, its degree of seriousness, whether or not it has been corrected or helped, and how

Handicap	How Serious	What Help

APPENDIX B

SELF-EXPECTATION INVENTORY

NAME____________________ DATE__________

M_______ F_______ GRADE_______ SCHOOL_______

DIRECTIONS: This instrument is part of a University of Wisconsin study being carried out in high schools to learn more about high school students. Listed below are 39 statements. Go through them quickly, without spending too much time on any single one. Answer the statements in order, without skipping. Feel free to answer exactly how you feel for the school will not see your answers.

This is not a test. There are no right or wrong answers. As you read the items, consider each one carefully and then, mark each statement in the left margin according to how strongly you feel that it applies to you, or does not apply to you. Please mark every one. Write in the number (1, 2, 3, or 4) to stand for the following answers:

1 = Yes, I feel that this is what I expect of myself.
2 = Yes, I feel that this is probably what I expect of myself.
3 = No, I feel that this is probably not what I expect of myself.
4 = No, I feel that this is not what I expect of myself.

AS A STUDENT, I EXPECT MYSELF TO:

______ 1. do good work even in classes I don't like.
______ 2. ask my teachers for help with my schoolwork.
______ 3. spend as much time as possible with my boyfriend (girlfriend)
______ 4. attend school regularly.
______ 5. be active in organizing student activities.
______ 6. get as much out of my classes as possible.
______ 7. check and recheck my homework before turning it in.
______ 8. listen carefully to class discussions.
______ 9. do homework even if not interested in it.
______ 10. behave as my teachers expect me to behave.
______ 11. do my schoolwork ahead of time.
______ 12. do all the schoolwork assigned.
______ 13. know about the newest and most popular records.
______ 14. want good grades.
______ 15. do the best I can in school.
______ 16. keep up with the latest in teen-age fads.
______ 17. attend non-athletic functions at school.
______ 18. obey school rules only when I am watched.
______ 19. work hard even in classes I don't like.
______ 20. study hard so as to be able to get into college.
______ 21. do more than the minimum of schoolwork expected of me.
______ 22. set the pace in the latest styles.
______ 23. spend much of my out-of-school time studying.

________ 24. hand my homework in on time.

________ 25. really keep busy with my schoolwork.

________ 26. hand in near perfect homework.

________ 27. put forth my best efforts at all times.

________ 28. do the work necessary to "get by."

________ 29. work hard.

________ 30. do my schoolwork before becoming involved with other activities.

________ 31. take school seriously.

________ 32. be hard to get to know.

________ 33. take advantage of any educational opportunity offered to me.

________ 34. pay attention in class.

________ 35. work hard for what I get.

________ 36. do my schoolwork independently.

________ 37. work well with kids in my classes.

________ 38. consider good grades important.

________ 39. stick with a problem until it is solved.

Scoring the Self-Expectation Inventory

The following procedures were used to score SE's. Because of the nature of the instrument and its development, the inventory was scored differently according to the subject's sex.

Male Scoring Procedures

1. Only the following questions were scored for males:

1-
2-
3+
4-
5-
6-
7-
8-
9-
10-
11-
12-
13+
14-
15-
16+
17-
18+
19-
20-
21-
22+
23-
24-
25-
26-

2. The answers to questions which have a (-) following were inverted as follows:

1 - 4
2 - 3
3 - 2
4 - 1

3. The answers to questions which have a (+) following them were not inverted.

4. The converted scores and the (+) scores were totaled, and this sum was the subject's score.

Female Scoring Procedures

The procedures for scoring female responses were the same as for the males except that in the majority of cases different questions were scored. The questions scored for females were:

19-
20-
21-
22+
23-
24-
25-
26-
27-
28+
29-
30-
31-
32+
33-
34-
35-
36-
37-
38-
39-

APPENDIX C

SELF-CONCEPT OF ABILITY INVENTORY

INTRODUCTION: The Counseling and Behavioral Studies Department at the University of Wisconsin is doing a study to find out what high school students think about themselves and their school work. You can help us to better understand people your age by answering the following questions as honestly as you can.

The questions are of the multiple-choice type with which you are familiar. Please read carefully the directions before you answer. If you have any questions please raise your hand and someone will help you.

DIRECTIONS: Below are eight questions. Circle the letter in front of the Statement which best answers each question. Make sure that you answer every question.

---

1. Where do you think you would rank in your class in high school?

    1. among the best
    2. above average
    3. average
    4. below average
    5. among the poorest

2. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think it is that you could complete such advanced work?

    1. very likely
    2. somewhat likely
    3. not sure either way
    4. unlikely
    5. most unlikely

3. Do you think you have the ability to complete college?

    1. yes, definitely
    2. yes, probably
    3. not sure either way
    4. probably not
    5. no

4. How do you rate yourself in school ability compared with those in your class at school?

GO ON TO THE NEXT PAGE

1. I am among the best
2. I am above average
3. I am average
4. I am below average
5. I am among the poorest

5. Forget for a moment how others grade your work. In your own opinion how good do you think your work is?

   1. my work is excellent
   2. my work is good
   3. my work is average
   4. my work is below average
   5. my work is much below average

6. What kind of grades do you think you are capable of getting?

   1. mostly A's
   2. mostly B's
   3. mostly C's
   4. mostly D's
   5. mostly F's

7. Where do you think you would rank in your class in college?

   1. among the best
   2. above average
   3. average
   4. below average
   5. among the poorest

8. How do you rate yourself in school ability compared with your close friends?

   1. I am the best
   2. I am above average
   3. I am average
   4. I am below average
   5. I am the poorest

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Scoring the Self-Concept of Ability Inventory

The following procedures were followed in scoring the SCA's:

1. The answer to each question was converted as follows:

   1 - 5
   2 - 4
   3 - 3
   4 - 2
   5 - 1

2. The inverted scores were totaled, and this sum was a subject's SCA score. There were eight questions, hence the maximum score was forty and the minimum score eight.

APPENDIX D

DESCRIBING APPROPRIATE BEHAVIOR

NAME ______________________ ______________________
LAST FIRST

SCHOOL ____

CLASS ________ ________ ________ ________
freshman sophomore junior senior

DATE ______________________

______
#

Describing Appropriate Behavior

Adjectives are often used to describe the behavior of people. Generally, people believe that certain forms of behavior are more appropriate for males than females. We would like to find out the types of behavior you feel are either more appropriate for teenage boys or for teenage girls, or equally as appropriate for both. You do this by deciding for each of the adjectives presented on the following pages which one of the seven numbered categories you feel it best belongs in.

At this point look at the sample adjectives listed below along the side of the page, and then please read carefully the category headings. These are the seven short numbered sentences stated below.

SAMPLE ADJECTIVES	3 Definitely more appropriate for the teenage boy.	2 In most cases more appropriate for the teenage boy.	1 Well, somewhat more appropriate for the teenage boy.	0 Appropriate for either teenage boy or girl.	1' Well, somewhat more appropriate for the teenage girl.	2' In most cases more appropriate for the teen-age girl.	3' Definitely more appropriate for the teen-age girl.
happy	—	—	—	—	—	—	—
faithful (true to one's word)	—	—	—	—	—	—	—
daring	—	—	—	—	—	—	—

Read each adjective and its accompanying definition--if it has one. Then indicate your selection by placing a cross through the dash mark (X) that is on the same line as the adjective you are making your decision on, and which is under the category you feel is appropriate. Please try to give your first impression. If even after reading the adjective's definition you do not understand what it means then skip it and go on to the next one. There is no time limit, but since we would like, as much as possible, your first impression you should be able to proceed at a fairly rapid rate. IF YOU HAVE ANY QUESTIONS PLEASE ASK THEM NOW!

	3 Definitely more appropriate for the teenage boy.	2 In most cases more appropriate for the teenage boy.	1 Well, somewhat more appropriate for the teenage boy.	0 Appropriate for either teenage boy or girl.	1' Well, somewhat more appropriate for the teenage girl.	2' In most cases more appropriate for the teenage girl.	3' Definitely more appropriate for the teenage girl.
absent-minded*	___	___	___	___	___	___	___
active	___	___	___	___	___	___	___
adaptable (gets use to new situations easily)	___	___	___	___	___	___	___
adventurous	___	___	___	___	___	___	___
affectionate	___	___	___	___	___	___	___
aggressive	___	___	___	___	___	___	___
alert	___	___	___	___	___	___	___
ambitious	___	___	___	___	___	___	___
anxious (worried)	___	___	___	___	___	___	___
apathetic (lacks feeling, does not care)	___	___	___	___	___	___	___
appreciative	___	___	___	___	___	___	___
argumentative	___	___	___	___	___	___	___
arrogant (too proud)	___	___	___	___	___	___	___

---

*An identical format is followed for the remainder of the adjectives listed on the following three pages.

artistic
assertive (defends ideas boldly)
attractive
awkward
bitter
boastful
bossy
calm
capable
careless
cautious
changeable
charming
cheerful
civilized
clear-thinking
clever
coarse (rough, harsh)
cold (lacking in warmth to others)
commonplace
complaining
complicated
conceited
confused
conscientious (careful & exact)
conservative
considerate
contented
conventional (agrees with custom)
cool
cooperative
courageous
cowardly
cruel
curious
cynical (lacks faith in man)
daring
deceitful
defensive
deliberate
demanding
dependable
dependent
determined
disorderly
dissatisfied
distractible (attention to the task wanders easily)
distrustful
dominant (dominates others)
dreamy
dull
easy going
educated
efficient
egotistical (boastful, conceited)
emotional
energetic
enterprising (ready to do projects of difficulty & importance)
enthusiastic
excitable
fair-minded
fault-finding
fearful
feminine
fickle
flirtatious (flirts)
foolish
foresighted (looking ahead to the future)
forgetful
forgiving
formal
frank (says what one means)
friendly
frivolous
fussy
generous
gentle
gloomy
good-looking
good-natured
good-student
greedy
handsome
hard-hearted
hasty
headstrong
healthy
helpful
high-strung
honest
hostile
humorous
hurried
idealistic (pursues or cherishes ideals)
imaginative
immature
impatient
impulsive (acts impulsively; swayed by emotions)
independent
indifferent
individualistic (independent in thought & action)
industrious
infantile
informal
ingenious (cleverness of invention or construction)
inhibited (a restrained person)
initiative (gets things going)
insightful (can see inner character or truth)

intelligent
interests-narrow
interests-wide
inventive
irresponsible
irritable
jolly
kind
lazy
leisurely
logical
loud
loyal
mannerly
masculine
mature
meek
methodical
(acts in a systematic way)
mild
mischievous
moderate
modest
moody
nagging
natural
nervous
noisy
obliging
(likely to do favors for others)
obnoxious
(objectionable)
opinionated
(conceited with regard to one's opinions)
opportunistic
(changes behavior according to the situation)
optimistic
(takes a favorable view of things)
organized
original
outgoing
outspoken
painstaking
patient
peaceable
perservering
(sticks with tasks despite difficulties)
persistent
pessimistic
(takes an unfavorable view of things)
planful
pleasant
pleasure-seeking
poised (steady, stable)
poor-student
practical
praising
precise
(exact)
prejudiced
progressive
(favors progress, improvement)
prudish
(extremely modest or proper)
quarrelsome
quick
quitting
rational
(acts more on reason than emotion)
rattlebrained
realistic
reasonable
rebellious
reckless
reflective
(to think carefully)
relaxed
reliable
resentful
reserved
resourceful
responsible
restless
rigid
rude
sarcastic
(uses sneering or cutting remarks)
self-centered
self-confident
self-controlled
self-denying
self-pitying
self-punishing
self-seeking
selfish
sensitive
sentimental
serious
severe
sharp-witted
shiftless
show-off
shrewd
(sharp in practical matters)
shy
silent
simple
sincere
slipshod
slow
sly
smug
snobbish
sociable
soft-hearted
sophisticated
spend thrift
spineless
spontaneous
(does things spontaneously)
stable
steady
stern
stingy

strong
stubborn
submissive
(likely to give
 in; obey)
suggestible
(readily takes
 suggestions)
sulky
superstitious
suspicious
sympathetic
tactful
talkative
temperamental
tense
thankless
thorough
thrifty
timid
tolerant
touchy
tough
trusting
unambitious
unconventional
(does not conform to the rules)
undependable
understanding
unemotional
unexcitable
unfriendly
unintelligent
unkind
unrealistic
unselfish
unstable
versatile
(can do many
 different things)
warm
weak
well-educated
wholesome
wise
withdrawn
witty
worrying
zany

APPENDIX E

SELF-DESCRIPTION ADJECTIVE CHECK LIST

If a person were to describe himself to another he could fairly effectively do so by making a list of the adjectives that describe him and another of those that don't. Below and on the following pages are adjectives that will enable you to partially describe yourself. Read each adjective and its brief definition if it has one. Then indicate whether or not you feel it describes you by placing a check on the line under one of these categories. These categories are: "Yes, I would generally describe myself as being___." "No, I would not generally describe myself as being___." "Sorry, I can't decide on this one." Please try to use this category as little as possible.

There are 271 adjectives upon which you are to make a decision. Do not hurry, but do not think too much about each decision. It would probably be best to indicate what your first choice was after you read the adjective and its definition if it has one. There is no time limit, but since we prefer to have your first choice it should not take you very long. IF YOU HAVE ANY QUESTIONS PLEASE ASK THEM NOW.

	"Yes, I would generally describe myself as being___."	"No, I would not generally describe myself as being___."	"Sorry, I can't decide on this one."
happy	___	___	___
faithful (true to one's word)	___	___	___
daring	___	___	___

NAME ________________________________
last first middle

SCHOOL ______________________

CLASS ________________________________
freshman sophomore junior senior

Date ______________________

____
#

	"Yes, I would generally describe myself as being___."	"No, I would not generally describe myself as being___."	"Sorry, I can't decide on this one."
absent-minded*	____	____	____
active	____	____	____
adaptable (gets used to new situations easily)	____	____	____
adventurous	____	____	____
affectionate	____	____	____
aggressive	____	____	____
alert	____	____	____
ambitious	____	____	____
anxious (worried)	____	____	____
apathetic (lacks feeling, does not care)	____	____	____
appreciative	____	____	____
argumentative	____	____	____
arrogant (too proud)			
artistic	____	____	____
assertive (defends ideas boldly)	____	____	____
attractive	____	____	____
awkward	____	____	____
bitter	____	____	____
boastful	____	____	____
bossy	____	____	____
calm	____	____	____
capable	____	____	____
careless	____	____	____
cautious	____	____	____
changeable	____	____	____
charming	____	____	____
cheerful	____	____	____
civilized	____	____	____
clear-thinking	____	____	____
clever	____	____	____
coarse (rough, harsh)	____	____	____

---

*An identical format was followed for the remainder of the adjectives listed on the following three pages.

cold (lacking in warmth to others)
commonplace
complaining
complicated
conceited
confused
conscientious (careful & exact)
conservative
considerate
contented
conventional (agrees with custom)
cool
cooperative
courageous
cowardly
cruel
curious
cynical (lacks faith in man)
daring
deceitful
defensive
deliberate
demanding
dependable
dependent
determined
disorderly
dissatisfied
distractible (attention to the task wanders easily)
distrustful
dominant (dominates others)
dreamy
dull
easy-going
educated
efficient
egotistical (boastful, conceited)
emotional
energetic
enterprising (ready to do projects of difficulty & importance)
enthusiastic
excitable
fair-minded
fault-finding
fearful
feminine
fickle
flirtatious (flirts)
foolish
foresighted (looking ahead to the future)
forgetful
forgiving
formal
frank (says what one means)
friendly
frivolous
fussy
generous
gentile
gloomy
good-looking
good-natured
good-student
greedy
handsome
hard-hearted
hasty
headstrong
healthy
high-strung
honest
hostile
humorous
hurried
idealistic (pursues or cherishes ideals)
imaginative
immature
impatient
impulsive (acts impulsively; swayed by emotions)
independent
indifferent
individualistic (independent in thought & action)
industrious
infantile
informal
ingenious (cleverness of invention or construction)
inhibited (a restrained person)
initiative (gets things going)
insightful (can see inner character of truth)
intelligent
interests-narrow
interests-wide
inventive
irresponsible
irritable
jolly
kind
lazy
leisurely
logical
loud
loyal
mannerly
masculine
mature
meek
methodical (acts in a systematic way)
mild
mischievous
moderate
modest
moody
nagging

natural
nervous
noisy
obliging
(likely to do favors for others)
obnoxious
(objectionable)
opinionated
(conceited with regard to one's opinion)
opportunistic
(changes behavior according to the situation)
optimistic
(takes a favorable view of things)
organized
original
outgoing
outspoken
painstaking
patient
peaceable
persevering
(sticks with tasks despite difficulties)
persistent
pessimistic
(takes an unfavorable view of things)
planful
pleasant
pleasure-seeking
poised
(steady, stable)
poor-student
practical
praising
precise
(exact)
prejudiced
progressive
(favors progress, improvement)
prudish
(extremely modest or proper)
quarrelsome
quick
quiet
quitting
rational
(acts more on reason than emotion)
rattlebrained
realistic
reasonable
rebellious
reckless
reflective
(to think carefully)
relaxed
reliable
resentful
reserved
resourceful
responsible
restless
rigid
rude
sarcastic
(uses sneering or cutting remarks)
self-centered
self-confident
self-controlled
self-denying
self-punishing
self-seeking
selfish
sensitive
sentimental
serious
severe
sharp-witted
shiftless
show-off
shrewd
(sharp in practical matters)
shy
silent
simple
sincere
slipshod
slow
sly
smug
snobbish
sociable
soft-hearted
sophisticated
spend thrift
spineless
spontaneous
(does things spontaneously)
stable
steady
stingy
strong
stubborn
submissive
(likely to give in; obey)
suggestible
(readily takes suggestions)
sulky
superstitious
suspicious
sympathetic
tactful
talkative
temperamental
tense
thankless
thorough
thrifty
timid
tolerant
touchy
tough
trusting
unambitious
unconventional
(does not conform to the rules)
undependable
understanding
unemotional
unexcitable

unfriendly
unintelligent
unkind
unrealistic
unselfish
unstable
versatile
(can do many
different
things)
warm
weak
well-educated
wholesome
wise
withdrawn
witty
worrying
zany

APPENDIX F

Project RED

October 13, 1966

THE FIELD COUNSELING SERVICE AND DATA COLLECTION

Counselors are busy people. So are teachers and principals. Parents, too. At one time or another, any of these adults may wish for some extra help to get the job done. Even though the help be limited, it is the intention of Project RED to provide such assistance through offering to counsel high school students. The idea is to extend and supplement the counseling and guidance services of the local school and community, not to supplant those services.

Beginning with the Fall, 1966, school term, a Project RED team of trained counselors will be available to come to Project RED high schools on a scheduled basis and meet with selected students at least once during the school year. These meetings could involve both individual and group counseling. This service is more than the typical college or career day program. The focus of this counseling will be on the educational and career development of each student. No topic of concern is arbitrarily ruled out.

Due to the genesis of Project RED, it is necessary to direct the FIELD COUNSELING SERVICE toward high school students who may attend college somewhere. Defined broadly, such students would tend to fall into two groups: those who clearly intend to go to college, and those who do not have such intention but appear to have the capability. The local school staff and the Project RED staff will select students to receive counseling.

The help that the FIELD COUNSELING SERVICE can render is limited in a sense. With a small staff and a number of other major responsibilities, Project RED must determine the maximum number of students and schools to which the SERVICE can be offered. Arrangements will always be worked out with the local school staff.

In addition to counseling students, the Project RED staff will once again be engaged in gathering data on your students. The enclosure informs you of our data gathering objectives and procedures. It is our hope that these procedures will make it possible to gather data with the least amount of disruption to your school day.

Sincerely yours,

R. Wray Strowig, Professor and Director
of Project RED

Zander Ponzo, Research Assistant

Project RED
Enclosure

October 13, 1966
p. 1 of 2pp.

INFORMATION ON DATA GATHERING FOR PROJECT RED SCHOOLS AND STUDENTS

Timetable:	From now on, we hope to be testing once each Fall and once each Spring. Since we will probably be coming to your school anyway, whether to provide counseling to students or to discuss research results, we can plan our testing around such trips. (See tentative timetable on next page)
Testing Time:	Usually, about one hour, or slightly more than that, to test a whole class, e.g., all Freshmen or Seniors.
Who Gets Tested:	In 1966-67 school year, we need to test the Seniors this Fall semester, and the Freshmen and Sophomores in the Spring. After this year, we will test only Seniors in the Fall and Freshmen in the Spring. Thus, no class gets tested more than twice in four years of high school.
Cumulative Record Data:	This one is a big headache for you and us. We have to have grade-point-averages on these youngsters. For some schools, we will need last year's grades for last year's Juniors and Seniors. This year, we shall need them for this year's Seniors and Freshmen. If you wish, we will record them ourselves when we come to your school. Also the latest mental ability test scores (Henmon-Nelson)
Doing The Testing:	Some of you may prefer to have us send the materials and instructions and do the testing yourself. This has the advantage of working into your schedule smoothly. However, that is an added burden on you and we will be glad to do it ourselves, provided we can have at least a whole class at one time, e.g., Freshmen.
Testing Content:	Right now, we are measuring student self-concept, student self-expectations (standards), student sense of role as boy or girl student, sense of identity, and a lot of minute details of a biographical nature from our educational data

form. If you have questions you'd like answered, please ask us. We'll try.

Project RED Research Staff
2218 University Avenue
262-4354

Wray Strowig, Director
400 Babcock Drive
262-3901

TENTATIVE TRIP SCHEDULE

Week of	Time	School
October 24-28	Morn.--Aft. same day	Dodgeville, Iowa-Grant
October 31-Nov. 4	Morn.-Aft. same day	Kiel, Reedsville
Nov. 7-11	Morn.-Aft. same day	Barneveld, Mineral Point
Nov. 7-11	Morn. or Aft.	Hollandale
Nov. 14-18	First day of trip afternoon	Clear Lake, Clayton
Adjacent days	Second day of trip Morn.-Aft.	Osceola, St. Croix Falls, Frederic, Miltown
Nov. 21-23	Norn.-Aft.	Mishicot, Valders
Nov. 28-Dec. 2 Adjacent days	1 school on Aft. of first day of trip. 2 school on Second day of trip. Morn.-Aft.	Park Falls, Phillips Prentice
Nov. 28-Dec. 2	Morn.-Aft.	Adams-Friendship

Within a few days of receiving this schedule you will be contacted by a Project RED staff member. Please do not make a final decision on a date until you are contacted. Also, may I suggest that you check your school's calendar to avoid the possibility of arranging a visit at a time when many of your students will not be available. Thank you very much for your cooperation.

R. W. Strowig
Z. Ponzo

APPENDIX G

SRI ADJECTIVES

The 146 Adjectives Significant At the .001 Level for the Total Group (n=329), and Their Level of Significance Considering Boys and Girls Separately

	BOYS (n=149)			GIRLS (n=180)		
ADJECTIVES	.001	.01	.05	.001	.01	.05
adventurous*	x			x		
affectionate	x			x		
aggressive*	x			x		
anxious	x			x		
apathetic*	x			x		
appreciative		x		x		
argumentative*			x		x	
arrogant* **				x		
artistic		x		x		
assertive*	x			x		
attractive	x			x		
awkward*	x			x		
bitter*	x				x	
boastful*	x			x		
careless*	x			x		
cautious			x	x		
changeable	x			x		
charming	x			x		
cheerful	x			x		
civilized**				x		
clever*		x				x
coarse*	x			x		
cold*	x			x		
complaining	x				x	
complicated	x					x
conscientious		x		x		
considerate		x		x		
courageous*	x			x		
cowardly	x			x		
cruel*	x			x		
daring*	x			x		
defensive*		x		x		
disorderly*	x			x		
distractible*			x	x		

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*For the total group (n=329), adjectives found to be considered more appropriate for the male at the .001 level.

**One of the 22 adjectives not included in the test of sex-role identity because it did not discriminate between males and females at at least the .05 level when boys' and girls' responses where considered separately.

ADJECTIVES	BOYS (n=149) .001	.01	.05	GIRLS (n=180) .001	.01	.05
dominant*	x				x	
dreamy	x			x		
dull* **					x	
easy going*	x					x
egotistical*		x		x		
emotional	x			x		
energetic*	x					x
excitable	x			x		
fault-finding	x					x
fearful	x			x		
feminine	x			x		
fickle	x			x		
flirtatious	x			x		
forgiving		x		x		
formal	x			x		
frank*	x			x		
frivolous		x		x		
fussy	x			x		
gentle	x			x		
good-student		x				x
greedy* **					x	
handsome*	x			x		
hard-hearted*	x			x		
hasty*	x			x		
headstrong*	x			x		
healthy*	x					x
high-strung	x			x		
hostile*		x		x		
humorous*	x					x
hurried**				x		
idealistic	x			x		
imaginative**				x		
immature* **				x		
impatient* **					x	
independent*	x			x		
indifferent* **				x		
individualistic*	x				x	
industrious*	x			x		
informal*	x			x		
ingenious*	x			x		
insightful		x		x		
inventive*	x			x		
irresponsible* **				x		
kind		x		x		
lazy*	x			x		
loud*	x			x		
mannerly			x	x		
masculine*	x			x		
meek	x			x		

ADJECTIVES	BOYS (n=149)			GIRLS (n=180)		
	.001	.01	.05	.001	.01	.05
				x		
mild	x			x		
mischievous*	x			x		
modest			x	x		
nagging	x			x		
nervous	x			x		
noisy* **				x		
obnoxious* **				x		
organized **				x		
outspoken* **				x		
patient			x	x		
pleasant		x		x		
poised **				x		
poor-student*	x			x		
praising			x	x		
prudish			x	x		
quick*	x			x		
quiet **					x	
rational*		x		x		
rebellious*	x			x		
reckless*	x			x		
reflective **				x		
restless*	x			x		
rigid*		x		x		
rude*	x			x		
sarcastic* **				x		
self-pitying		x		x		
sensitive	x			x		
sentimental	x			x		
severe*	x			x		
shiftless*		x		x		
show-off*	x			x		
shrewd*	x			x		
shy			x	x		
sincere			x	x		
slipshod* **				x		
slow*			x		x	
sly*			x	x		
snobbish	x			x		
sociable **				x		
soft-hearted	x			x		
sophisticated		x		x		
stern*	x			x		
strong*	x			x		
stubborn*		x		x		
submissive		x		x		
superstitious	x			x		
sympathetic	x			x		
talkative	x			x		
thankless*		x		x		

ADJECTIVES	BOYS (n=149) .001	.01	.05	GIRLS (n=180) .001	.01	.05
timid			x		x	
touchy	x			x		
tough*	x			x		
unconventional*	x			x		
undependable*		x		x		
understanding **				x		
unemotional*	x			x		
unexcitable*	x			x		
unfriendly*	x			x		
unintelligent* **				x		
unkind*	x			x		
warm	x			x		
weak	x			x		
worrying	x			x		

The Male Adjectives (n=65)

adventurous
aggressive
apathetic
argumentative
assertive
awkward
bitter
boastful
careless
clever
coarse
cold
courageous
cruel
daring
defensive
disorderly
distractible
dominant
easy-going
egotistical
energetic
frank

handsome
hard-hearted
hasty
headstrong
healthy
hostile
humorous
independent
individualistic
industrious
informal
ingenious
inventive
lazy
loud
masculine
mischievous
poor-student
quick
rational
rebellious

reckless
restless
rigid
rude
severe
shiftless
show-off
shrewd
slow
sly
stern
strong
stubborn
thankless
tough
unconventional
undependable
unemotional
unexcitable
unfriendly
unkind

The Female Adjectives (n=59)

affectionate
anxious
appreciative
artistic
attractive
cautious
changeable
charming
cheerful
complaining
complicated
conscientious
considerate
cowardly
dreamy
emotional
excitable
fault-finding
fearful
feminine
fickle
flirtatious
forgiving
formal
frivolous
fussy
gentle
good-student
high-strung
idealistic
insightful
kind
mannerly
meek
mild
modest
nagging
nervous
patient
pleasant
praising
prudish
self-pitying
sensitive
sentimental
shy
sincere
snobbish
soft-hearted
sophisticated
submissive
superstitious
sympathetic
talkative
timid
touchy
warm
weak
worrying

APPENDIX H

BREAKDOWN OF SRI RESPONSES INTO FOUR CATEGORIES FOR FRESHMEN AND SENIOR SUBJECTS FROM TWO RANDOMLY SELECTED SRI SCHOOLS

TABLE 27

PROPORTION OF RESPONSES EITHER REJECTING OR ACCEPTING MALE OR FEMALE ADJECTIVES BY SEX AND GRADE LEVEL

	Boys (B)					Girls (G)			
	AM*	RM	AF	RF		AM	RM	AF	RF
Seniors(n=24)	.41	.46	.48	.37	Seniors(n=23)	.36	.49	.54	.31
Freshmen(n=47)	.40	.51	.44	.44	Freshmen(n=44)	.30	.65	.59	.35
Mean(n=71)	.40	.48	.46	.39	Mean(n=67)	.34	.58	.56	.32

*AM=Accepts male adjectives
RM=Rejects male adjectives
AF=Accepts female adjectives
RF=Rejects female adjectives

TABLE 28

HYPOTHESES TESTED AND z SCORES FOR DATA CONTAINED IN TABLE 27

Hypotheses	z*	**
Boys AM = Girls AF	-15.65	.0001
Boys RM = Girls RF	16.33	.0001
Boys AF = Girls AM	10.91	.0001
Boys RF = Girls RM	-17.27	.0001
Fr. Boys AM = Sn. Boys AM	2.04	.05
Fr. Boys RM = Sn. Boys RM	-10.00	.0001
Fr. Boys AF = Sn. Boys AF	8.00	.0001
Fr. Boys RF = Sn. Boys RF	-14.34	.0001
Fr. Girls AM = Sn. Girls AM	12.76	.0001
Fr. Girls RM = Sn. Girls RM	-32.65	.0001
Fr. Girls AF = Sn. Girls AF	-10.20	.0001
Fr. Girls RF = Sn. Girls RF	- 8.51	.0001

z* = z scores derived from using a test of significance between two independent proportions, (Ferguson, p. 146).

**The investigator felt that only z scores having a two-tailed level of significance of .0001 or less should be considered significant. This was because "n" used in the test of significance for each group was so large. A group's "n" was equal to, for example, the number of subjects in the group multiplied by the number of male adjectives--if male adjectives was involved in a hypotheses. For the hypothesis (Fr. Boys AM = Sn. Boys AM) the "n" for the Fr. Boys was equal to: 47 x 65 = 3,055.

LIST OF REFERENCES

Adler, A. Understanding Human Nature. New York: McGraw-Hill, 1927.

Anastasiow, N. J. Success in school and boys' sex role patterns. Child Development, 1965, 36(4), 1053-1066.

Bandura, A. & Walters, R.H. Social Learning and Personality Development. New York: Holt, Rinehart, and Winston, 1964.

Barrows, G. A. & Zuckerman, M. The construct validity of three masculinity-femininity tests. Journal of Consulting Psychology, 1960, 24, 441-445.

Benedict, R. Patterns of Culture. New York: Mentor, 1934.

Bieliauskas, V.J. Recent advances in psychology of masculinity and femininity. Journal of Psychology, 1965, 60(2), 255-263.

Biller, H. B. & Borstelman, L. J. Intellectual level and sex role development in mentally retarded children. American Journal of Mental Deficiency, 1965, 70(3), 443-447.

Binder, D. Relationships among self-expectations, self-concept and academic achievement. Unpublished doctoral dissertation, University of Wisconsin, 1965.

Birdie, R. F. A femininity adjective check list. Journal of Applied Psychology, 1959, 43, 327-333.

Booth, S. D. Perceived similarity of sex-role characteristics among preadolescent and adolescent girls. Dissertation Abstracts, 1964, 25(6), 3684.

Brookover, W. B., Paterson, A. & Thomas, S. Self-Concept of Ability and School Achievement. East Lansing, Michigan: Office of Research and Publications, Michigan State University, 1962.

Brown, D. G. Sex-role preferences in young children. Psychological Monograph, 1956, 70(14), whole # 421.

Brown, D. G. M-F development in young children. Journal of Consulting Psychology, 1957, 21, 197-202.

Brown, D. G. Sex-role preferences in children: methodological problems. Psychological Reports, 1962, 11, 477-478.

Coleman, J. S. The Adolescent Society. New York: The Free Press of Glencoe, 1961.

Collier, R. O. Two way ANOVA with disproportionate frequency/cell-method of unweighted means. Paper presented to class, University of Wisconsin, 1965.

Crutchfield, R. S., Krech, D. & Ballachey, E. L. Individual In Society. New York: McGraw-Hill, 1962.

Didato, S. V. & Kennedy, T. M. Masculinity-femininity and personal values. Psychological Reports, 1956, 21, 231-250.

Donat, G. M. Factors related to the measurement of masculinity among students majoring in secondary education. Dissertation Abstracts, 1959, 19(7), 1834-1835.

Douvan, E. & Kaye, C. Adolescent Girls: A Nationwide Study of Girls 11 to 18 Years of Age. Institute of Social Research, University of Michigan, 1957.

Epstein, R. Verbal conditioning in children as a function of sex-role. Dissertation Abstracts, 1962, 22(7), 2462.

Erikson, E. H. Childhood and Society. New York: Norton, 1950.

Farnsworth, P. R. The effects of role-taking on artistic achievement. Journal of Aesthetics and Art Criticism, 1960, 18, 345-349.

Fauls, L. B. & Smith, W. D. Sex role learning of five year olds. Journal of Genetic Psychology, 1956, 89, 105-117.

Ferguson, G. A. Statistical Analysis in Psychology and Education. New York: McGraw-Hill, 1959.

Fink, M. B. Self-concept as it relates to academic achievement. California Journal of Educational Research, 1962, 13(2), 57-62.

Franck, K. & Rosen, E. A projective test of masculinity-femininity. Journal of Consulting Psychology, 1949, 13, 247-256.

Freedheim, D. K. An investigation of masculinity and parental role patterns. Dissertation Abstracts, 1961, 21(7-8), 2363.

Freud, S. New Introductory Lectures on Psychoanalysis. New York: Hogarth, 1956.

Gallagher, J. H. Sex differences in expressive thought of gifted children in the classroom. The Personnel and Guidance Journal. 1966, 45(3), 247-248.

Goodstein, L. D. Regional differences in MMPI responses among male college students. Journal of Consulting Psychology, 1954, 18, 437-441.

Gough, H. G. & Heilbrun, A. B. The Adjective Check List Manual. Palo Alto: Consulting Psychologists Press, 1952.

Gough, H. G. The ACL as a personality assessment research technique. Psychological Reports, 1960, 6, 107-122.

Gough, H. G. A cross-cultural analysis of the CPI femininity scale. Journal of Consulting Psychology, 1966, 30(2), 136-141.

Gray, S. W. & Klaus, R. The assessment of parental identification. Genetic Psychological Monograph, 1956, 54, 87-109.

Greenstein, J. M. Father's characteristics and sex-role identity in a delinquent group. Dissertation Abstracts, 1961, 22(5), 1716.

Gretebeck, S. H. A career pattern study of seventy-six youths farming who were 1957 high school graduates in five selected counties in Wisconsin. Unpublished doctoral dissertation, University of Wisconsin, 1960.

Guilford, J. P. Psychometric Methods. New York: McGraw-Hill, 1954.

Hall, M. & Keith, R. A. Sex-role preference among children of upper and lower social class. Journal of Social Psychology, 1964, 62(1), 101-110.

Hammer, E. F. Creativity and feminine ingredients in young male artists. Perceptual and Motor Skills, 1964, 19(2), 414.

Hammer, M. A. A comparison of the responses of clinic and normal adults to Rorschach Card III, human figure area. Journal of Projective Techniques and Personality Assessment, 1966, 30(2), 161-162.

Handy, G. D. The sex-role preference scale for children: a study of the It figure. Unpublished master's thesis, University of Denver, 1954.

Hardesty, F. & Hardesty, R. Perceptions of sex roles in childhood. The Journal of Genetic Psychology, 1964, 105(1), 43-51.

Harsch, C. M. & Schrickel, H. G. Personality Development and Assessment. New York: The Ronald Press, 1950.

Hartley, R. E. Sex-role pressure and the socialization of the male child. Psychological Reports, 1959, 5(3), 457-468.

Hartley, R. E. Some implications of current changes in sex-role patterns. Merrill-Palmer Quarterly, 1960, 6(3), 153-164.

Hartup, W. W. Some correlates of parental imitation in young children. Child Development, 1962, 33, 85-96.

Hartup, W. W. & Zook, E. A. Sex-role preference in three and four-year-old children. Journal of Consulting Psychology, 1960, 24, 420-427.

Havighurst, R. J. Human Development and Education. New York: Longmans & Green, 1953.

Hays, W. L. Statistics for Psychologists. New York: Holt, Rinehart, & Winston, 1963.

Heilbrun, A. B., Jr. Sex-role identity and achievement motivation. Psychological Reports, 1963, 12(2), 483-490.

Heilbrun, A. B., Jr. Conformity to masculine-feminine stereotypes and ego identity in adolescents. Psychological Reports, 1964, 14(2), 351-357.

Heilbrun, A. B., Jr. & Goodstein, L. D. Consistency between social desirability ratings and item endorsement as a function of psychopathology. Psychological Reports, 1961, 8, 69-70.

Heller, D. G. The relation between sex appropriate behavior in young children and the clarity of the sex-role of the like-sexed parent as measured by tests. Dissertation Abstracts, 1959, 19, 3365-3366.

Hetherington, E. M. A developmental study of the effects of sex of the dominant parent on sex-role preference, identification, and imitation in children. Journal of Personality and Social Psychology, 1964, 21(4), 446-448.

Hetherington, E. M. The effects of familial variables on sex-role typing, parent-child similarity and imitation in children. Unpublished manuscript, University of Wisconsin, 1966.

Hogan, R. A. Children's sex-role preference with the It-figure. Unpublished master's thesis, University of Denver, 1957.

Ishiyama, T. & Brown, A.F. Sex-role conceptions and the patient in a state mental hospital. Journal of Clinical Psychology, 1965, 21(4), 446-448.

Jones, J. G. Relationships among identity development and intellectual and nonintellectual factors. Unpublished doctoral dissertation, University of Wisconsin, 1966.

Kagan, J. & Moss, H. Birth to Maturity. New York: Wiley, 1962.

Kellams, S. E. A descriptive study of students in rural Wisconsin high school classes of 1965 and 1968. Unpublished master's thesis, University of Wisconsin, 1966.

Kerlinger, F. N. Foundations of Behavioral Research. New York: Holt, Rinehart & Winston, 1965.

Komarovsky, M. Cultural contradictions and sex roles. American Journal of Sociology, 1946, 52, 184-189.

Lansky, L. M. & McKay, G. Sex-role preference of kindergarten boys and girls: some contradictory results. Psychological Reports, 1963, 13(2), 415-421.

Lazovick, L. M. On the nature of identification. Journal of Abnormal and Social Psychology, 1955, 51, 175-183.

Leftkowitz, M. M. Some relationships between sex-role preference of children and other child variables. Psychological Reports, 1962, 10(1), 43-53.

Lipinski, B. Sex-role conflict and achievement motivation in college women. Dissertation Abstracts, 1966, 26(7), 4077.

Lowe, W. P. Sex of the examiner in relation to sex-role preference in kindergarten children. Unpublished master's thesis, University of Denver, 1957.

Lundy, R. M. Self-perceptions regarding masculinity-femininity and description of same and opposite sex sociometric choice. Sociometry, 1958, 21, 238-246.

Lynn, D. B. A note on sex difference in the development of masculine and feminine identification. Psychological Review, 1959, 66, 126-135.

Lynn, D. B. Sex-role and parental identification. Child Development, 1962, 33(3), 555-564.

McCarthy, M. K. & McCall, R. J. Masculinity faking of the Fm scale of an interests inventory. Personnel and Guidance Journal, 1962, 41(4), 346-349.

McCaulley, M. H. Dimensions of masculinity-femininity in relation to felt dependence, dogmatism, and other estimates of perceptual-cognitive differentiation. Dissertation Abstracts, 1965, 25(7), 4259.

McJee, J. P. & Sheriffs, A. C. The differential evaluation of males and females. Journal of Personality, 1957, 25, 356-371.

Mead, M. Sex and Temperament. New York: Morrow, 1935.

Milner, E. Effects of sex role and social status on early adolescent personality. Genetic Psychological Monograph, 1949, 40, 2-325.

Minuchin, P. Sex-role concepts and sex typing in childhood as a function of school and home environment. Child Development, 1965, 36(4), 1033-1048.

Mussen, P. H. Some antecedents and consequents of masculine sex-typing in adolescent boys. Psychological Monographs, 1961, 75(2), whole.

Mussen, P. H. & Distler, L. Masculinity, identification and father-son relationships. Journal of Abnormal and Social Psychology, 1959, 59, 350-356.

Mussen, P. H. & Rutherford, B. E. Parent-child relations and parental personality in relation to young children's sex-role preferences. Child Development, 1963, 34(3), 589-607.

Nance, R. D. Masculinity-femininity in prospective teachers. Journal of Educational Research, 1949, 42, 658-666.

Overall, J. E. A masculinity-femininity scale for the Kuder Preference Record. Journal of General Psychology, 1963, 69(2), 209-216.

Parsons, T. Family structure and the socialization of the child. In T. Parsons and R.F. Bales (Eds.), Family Socialization and Interaction Process. New York: The Free Press of Glencoe, 1955.

Porter, A. Effect of organization size on validity of masculinity-femininity scores. Journal of Applied Psychology, 1962, 46(3), 228-229.

Reece, M. Masculinity and femininity: a factor analytic study. Psychological Reports, 1964, 14(1), 123-139.

Richards, A. The dimension of masculinity and femininity as related to psychopathological groups. Dissertation Abstracts, 1962, 22(9), 3268.

Rosenberg, B. G. Sutton-Smith, B. & Morgan, E. F., Jr. Development of sex differences in play choices during preadolescence. Child Development, 1963, 34(1), 119-126.

Rosenberg, B. G. & Sutton-Smith, B. The measurement of masculinity and femininity: an extension and revalidation. Journal of Genetic Psychology, 1964, 104(2), 259-264.

Rosenberg, B. G. & Sutton-Smith, B. Age changes in the effects of ordinal position on sex-role identity. Journal of Genetic Psychology, 1965, 107(1), 61-73.

Sarbin, R. R., Pintler, M. H. & Sears, P. Effect of father separation on preschool doll aggression. Child Development, 1946, 217-243.

Sarbin, T. R. Role theory. In G. Lindzey (Ed.), Handbook of Social Psychology. Cambridge: Addison-Wesley, 1954.

Sargent, S. S. Social Psychology: An Integrative Interpretation. New York: The Ronald Press, 1950.

Sarnoff, I. Identification with the aggressor: some personality correlates of anti-semitism among Jews. Journal of Personality, 1951, 20, 199-218.

Schroeder, W. L. Factors related to academic success of male college students from five selected Wisconsin counties. Unpublished doctoral dissertation, University of Wisconsin, 1963.

Sears, P. S. Child-rearing factors related to play sex-typed roles. American Psychologist, 1953, 8, 431.

Sears, R. R., Pintley, M. H. & Sears, P.S. Effect of father separation on preschool children's doll play aggression. Child Development, 1946, 17, 219-243.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill, 1956.

Strowig, R. W. The EDF questionnaire. A Questionnaire produced for Project RED use, University of Wisconsin, 1964.

Sullivan, H. S. The Interpersonal Theory of Psychiatry. New York: Norton, 1953.

Sundheim, B. J. The relationships among "n" achievement "n" affiliation, sex-role concepts, and curriculum choice. Dissertation Abstracts, 1963, 23(9), 3471.

Szasz, T. S. The Myth of Mental Illness. New York: Harper & Row, 1961.

Terman, L. M. & Miles, C. C. Sex and Personality. New York: McGraw-Hill, 1936.

Thompson, C. Psychoanalysis: Evolution and Development. New York: Hermitage House, 1951.

Thorndike, R. L. The Concepts of Over - and Underachievement. New York: Teachers College, Columbia University, 1963.

Walker, H. M. & Lev. J. Elementary Statistical Methods. New York: Holt, Rinehart, & Winston, 1958.

Walker, R. N. Measuring masculinity and femininity by children's game choices. Child Development, 1964, 35(3), 961-971.

Webb, A. P. Sex-role preferences and adjustment in early adolescence. Child Development, 1963, 34(3), 609-618.

Weiss, P. Some aspects of femininity. Dissertation Abstracts, 1962, 23(3), 1083.

Winer, F. The relationship of certain attitudes toward the mother to sex-role identity. Dissertation Abstracts, 1962, 22(12), 4416.

Witte, R. E. A case analysis approach to the understanding of high and low academic achievement of University of Wisconsin freshmen from rural high schools. Unpublished doctoral dissertation, University of Wisconsin, 1967.

Wolfe, P., Wetterstraurl, U. & Hutchins, C. W. User's Manual: REGAN 1. Unpublished manual, University of Wisconsin Computing Center, 1966.

RELATIONS AMONG SEX-ROLE IDENTITY AND SELECTED INTELLECTUAL AND NONINTELLECTUAL FACTORS FOR HIGH SCHOOL FRESHMEN AND SENIORS

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All cultures have norms for appropriate male and female behavior. Through the influence of significant others a person learns what is appropriate for his sex and develops a sex-role identity (SRI) that is generally in accord with the norms of his culture. It is possible that these norms and resulting sex-role identities either impede or facilitate academic success. The primary purpose of this investigation was to ascertain the relations among SRI and intellectual and nonintellectual factors in academic achievement of adolescents.

Subjects were freshmen and seniors from nine rural Wisconsin high schools located in five counties deemed representative of rural Wisconsin. Seniors (n=329) from four of the schools were subjects for the ascertainment of sex-role norms. Freshmen (n=351) and seniors (n=291) from the other schools constituted the sample for the sex-role identity research.

Sex-role norms were determined by analyzing the responses to a 271 word modified adjective check list. Subjects responded to each adjective in terms of whether they felt it was more appropriate for a teenage boy or girl. One hundred and twenty-four adjectives found to discriminate between appropriate boy-girl behavior (binomial

test, .001) constituted the SRI instrument. The SRI's of freshmen and seniors were determined by scoring their responses to the adjectives.

The primary questions involved relations between SRI and student self-expectations (SE), self-concept of ability (SCA), Henmon-Nelson scores (H-N), and GPA. The secondary questions involved relations between SRI and mother's (MED) and father's education level (FED), and mother's work status (MWS). Correlation and multiple regression were used to answer the primary and secondary questions, t-tests and analysis of variance to test hypotheses.

For freshman boys the correlations of SRI with SE, SCA, H-N, and GPA were negative and significant ($p < .05$). For senior boys the correlations were negative, but only the SE-SRI one was significant. The significant correlations for girls were positive: SRI-SE, and SRI-GPA for freshmen; SRI-SE for seniors. The multiple correlation of SE, SCA, H-N, and SRI with GPA was significant for all groups. SRI was a significant predicting variable for girls, but not boys.

The SRI-MED correlation was significant and positive for senior boys.

Senior girls had significantly higher SE and SRI scores than freshman girls. Seniors planning to go to college were not lower in SRI than students planning to go to work or vocational school. Higher SRI scores indicate either greater masculinity or femininity.

Conclusions:

1. Appropriate behaviors were dichotomized along traditional

lines: the unemotional, cold, adventurous male; the warm, submissive, emotional female. However, sex-role identities evidenced a blending of traditional behaviors. It was felt that the traditional stereotype would impede scholastic achievement for boys, and restrict girls to traditional roles.

2. In feminine-oriented schools girls probably become more feminine, while boys develop more emergent roles. Boys, however, who are unsure of their masculinity would seemingly be threatened by any move in the feminine direction and instead would assert their masculinity in ways that impede academic achievement.

3. The lack of significant findings for the secondary research questions may be accounted for by the fact that the better educated parents generally had no more than a high school education, while the working mothers probably worked because of economic need and not because they wanted a career. College educated parents and mothers who were career oriented would probably model more emergent roles and have children lower in SRI than other parents.

4. College planning students were not lower in SRI than other students because they probably perceived college as a place to prepare for such traditional roles as nurse, teacher, engineer, scientist.

Approved

Date